ClearOne®

COLLABORATE® ROOM
USER GUIDE

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COLLABORATE Room

USER GUIDE

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WARNING: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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Chapter 1: Introduction

IN THIS CHAPTER

This chapter introduces the COLLABORATE Room videoconferencing system and includes the following sections:

- COLLABORATE Room Overview
- Main Features
- Comparison Table
- Feature Highlights

COLLABORATE ROOM OVERVIEW

The COLLABORATE Room (COLLABORATE Room High Definition) is an all-in-one high-definition executive videoconferencing system, featuring an embedded MCU, built-in recording capability, streaming of live and recorded sessions, data sharing, and more.

COLLABORATE Room provides an interface to videoconferencing via its plug-and-play application-in-a-box, providing on-screen operation controls and advanced call control options during conferencing. Utilizing the newest H.264 video standard and clear, crisp audio, the COLLABORATE Room brings users face-to-face with other people and organizations.

COLLABORATE Room enables you to record and stream video calls to multiple locations with up to 8 additional participants.

COLLABORATE Room incorporates advanced data sharing capabilities, allowing you to turn any videoconference into a fully interactive meeting. It can display presentations or videos on large monitors, connect to an external laptop for data sharing, and open various file types from USB storage devices.

COLLABORATE Room is ideal for users who need a powerful videoconference solution, offering point-to-point/multipoint capabilities, powered by ClearOne's COLLABORATE Room software.

Various accessories, such as a PTZ camera, omni-directional microphone, ClearOne ChatMic, data point and ISDN* adapters – can be installed and integrated as part of the COLLABORATE Room system.

* The ISDN option will be supported in a future version of COLLABORATE Room.

NOTES:

- **For more information about the COLLABORATE Room physical installation, including the connection of cables and devices to COLLABORATE Room, refer to the COLLABORATE Room Installation and Setup Guide.**
- **For the complete technical specifications, refer to the COLLABORATE Room datasheet.**

MAIN FEATURES

COLLABORATE Room allows you to call a destination via LAN or ISDN*, and to interact via video and data-sharing during calls. Some of the primary capabilities of the system include:

- Point-to-point or multipoint connections
- Recording, streaming, and data sharing
- Recording and playback of point-to-point and multipoint (MCU based) sessions
- Streaming via a Web interface or Windows Media Player
- Downloading/sharing files via a USB flash drive
- Access files on a USB flash drive while in idle mode
- Side-by-side PIP view
- Session multicast
- Embedded MCU for multipoint sessions
- Embedded broadcast viewer
- Calling via address book, log entries or speed dial
- Calling via online directories
- Multipoint videoconferences support
- Configurable audio, video and displays, and automatic answering
- Display on-screen running text to all participants via the Web management during a call
- Support ClearOne CHAT Mic
- Far End mute indicator
- Telnet interface
- Communicating in standalone mode, COLLABORATE Central mode and gatekeeper mode
- Embedded Microsoft Windows system
- System shutdown from the remote control
- Web-based management
- ISDN links (optional)
- Regulatory Compliance: UL, CSA (cUL), TUV, TUV-CB, CE-LVD, CE, FCC Class B, BSMi, VCCI, C-Tick, RoHS.

* The ISDN option will be supported in a future version of COLLABORATE Room.

COMPARISON TABLE

The following table specifies the differences between the various models of COLLABORATE Room.

	COLLABORATE SD	COLLABORATE HD	COLLABORATE FHD	COLLABORATE PHD
Max Tx	4CIF/30	720p/30	720/60 - 1080/30	1080/60
Max Rx	1080/60	1080/60	1080/60	1080/60
MCU	Up to 1+8	Up to 1+8	Up to 1+8	Up to 1+8
Recording	√	√	√	√
Streaming	√	√	√	√
Data via USB	√	√	√	√
Data Point (Optional)	√	√	√	√
Multiple Cameras	√	N/A	N/A	N/A
Bandwidth	Up to 4 Mbps	Up to 6 Mbps	Up to 6 Mbps	Up to 6 Mbps
H.239 Dual Video support	√	√	√	√
PTZ camera	√	√	√	√

Notes:

- **For PHD and FHD models, the display resolution must be set to 1920x1080.**
- **For HD and SD models, the display resolution must be set to 1920x1080 when the received resolution is 1080. Otherwise you may encounter video issues.**

FEATURE HIGHLIGHTS

New features incorporated in version 3.0 of COLLABORATE Room include:

- Support for VoIP calls using the Session Initiation Protocol (SIP)
- Network connections with H.323, H.460 or via tunneling.
  - H.323 is for LAN network connections when the connection type is known.
  - H.460 is for network connections over Firewall/NAT when the connection type is known.
  - ClearOne Proprietary Tunneling (not available when working with a gatekeeper).
- Automatic NAT mode recognizes your IP address and maps it to your internal extension number when you dial out through your organization LAN.

Chapter 2: Getting Started

IN THIS CHAPTER

Once the COLLABORATE Room unit is installed, connected and turned on, it is ready for use. This chapter describes the following basic operations:

- Using the Remote Control
- Using the On-Screen Menu
- Displaying System Information.

USING THE REMOTE CONTROL

You can navigate the COLLABORATE Room on-screen graphic user interface (GUI) using the infrared remote control, bundled with the unit.

Pressing any button on the remote control activates the on-screen GUI, which appears on top of the camera/videoconference picture.

The remote control includes the following button types:

- Alphanumeric Keypad

- Command Buttons
- Navigation Joystick and Additional Buttons.

Alphanumeric Keypad

The remote control includes an alphanumeric keypad with buttons from 0 to 9, as well as '.', ',', '*', '#', '^', '@', '$', ':', '=', '-', '_' and Clear (← Backspace) characters accessed by repeat button presses.

In different windows, you can toggle between **numbers** and **letters**, depending on the field. Some fields accept numbers only.

- Switch between letters and numbers by pressing a few times on the corresponding key
- Use Volume Up/Down buttons when you need to activate/deactivate CAPS lock
- When DTMF dialing is requested, use the numeric keypad.

Command Buttons

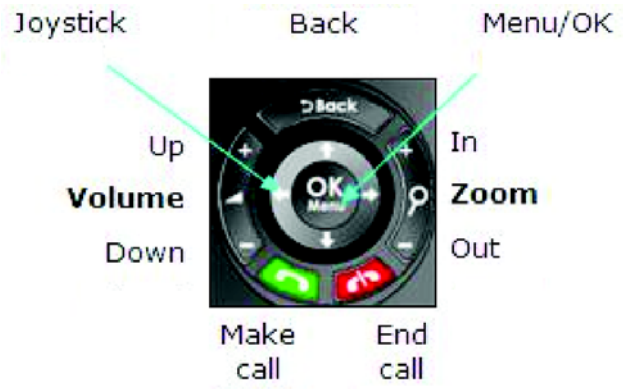
The following command buttons are available on the remote control:

Button Image	Button Name	Command
	Status	Display the current call status
	Data	Initiate data sharing
	Phone Book	Open the phone book
	Help	Show the on-screen online help
	Far End	Control the position (PTZ) of the camera at the near/far end
	Camera Control	Configure the camera position settings
	Preset: Recall	Recall a camera PTZ preset position
	Preset: Set	Set a camera PTZ preset position
	Picture-In-Picture (PIP)	Toggle the PIP position (5 positions + Side-by-Side)
	Speed Dial	Display the speed dial options
	Call Log	Display the current call log

Button Image	Button Name	Command
	Mute Mic	Mute the local microphone
	Display	Toggle the local and remote displays
	Settings	Open the settings menu
	Mute Video	Temporarily disable the local video camera and its transmission
	Mute Speaker	Mute the speaker

NAVIGATION JOYSTICK AND ADDITIONAL BUTTONS

Using the joystick of the **OK** button, you can navigate the GUI menus/options in four directional movements: **Up** ⬆, **Down** ⬇, **Left** ⬅, and **Right** ➡.



In addition to the joystick, the following buttons are available around it:

- **Back** – Returns to the previous step/window without saving changes
- **Menu/OK** – Selects/activates a highlighted GUI item/function (highlighted in green on the screen)
- **Volume Up/Down** – Increases/decreases the volume or switches between lower and upper case
- **Zoom In/Out** – Zooms in or out with the camera
- **Make Call** – Start a new call
- **End Call** – End the current call or close the GUI.

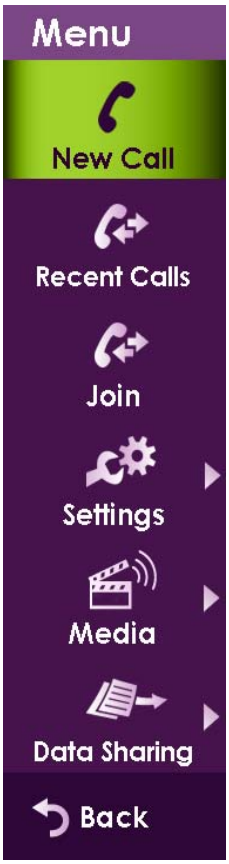
NOTE: The red End Call button can also be used for turning off the unit. Press and hold the button until the shutdown confirmation prompt appears. Selecting "Yes" immediately shuts down the system.

USING THE ON-SCREEN MENU

The on-screen menu enables you to navigate COLLABORATE Room options prior to and during a videoconference call. The main menu is accessed using the remote control (see Using the Remote Control).

To display the COLLABORATE Room main menu:

- Press **OK** on the remote control.

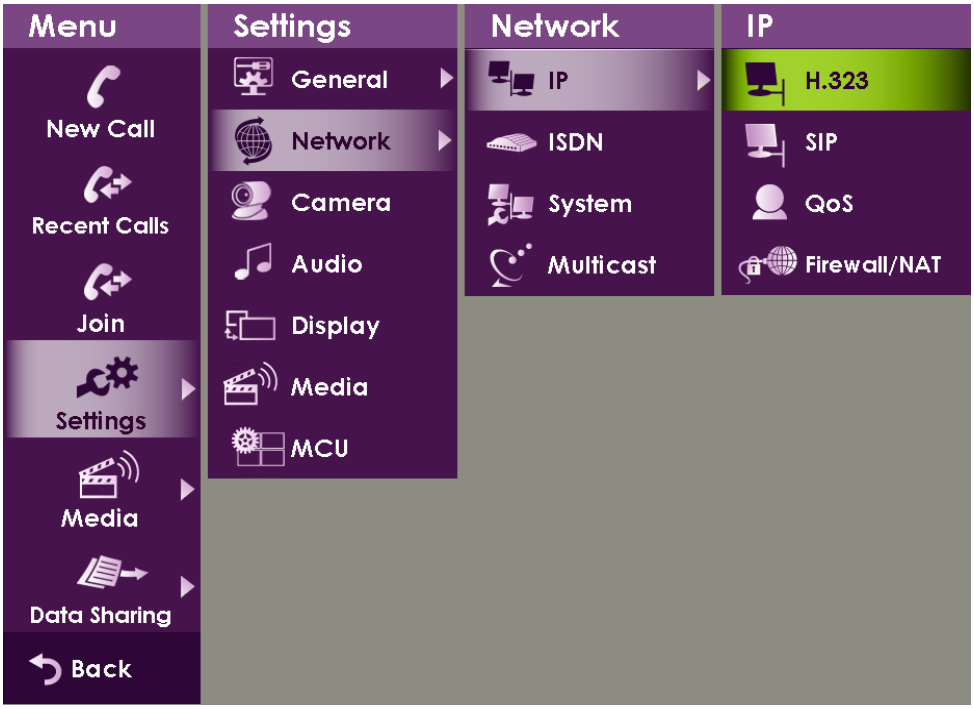


Navigate the COLLABORATE Room menu using the remote control.

To expand menu options:

- Press the right arrow (➡) on the joystick when the expandable option is selected.

NOTE: Expandable menu options are marked with a side triangle sign (▶).



To access a category/option:

- Press **OK** when the category/option is selected (highlighted in green).

To collapse the menu options:

- Press the left arrow (🡐) on the joystick, or press **Back**.

The following menu buttons may appear occasionally in the GUI (appear in the context of use):

GUI Button	Label	Function
OK	OK	Save changes
Back	Back	Return to the previous window without saving changes
Apply	Apply	Apply changes or soft-start your system
Restore Defaults	Restore Defaults	Cancels all user-defined settings and returns the unit to its factory default settings
Shutdown	Shutdown	Shut down the unit
Restart	Restart	Reboot the unit
Open	Open	Open the selected folder/file

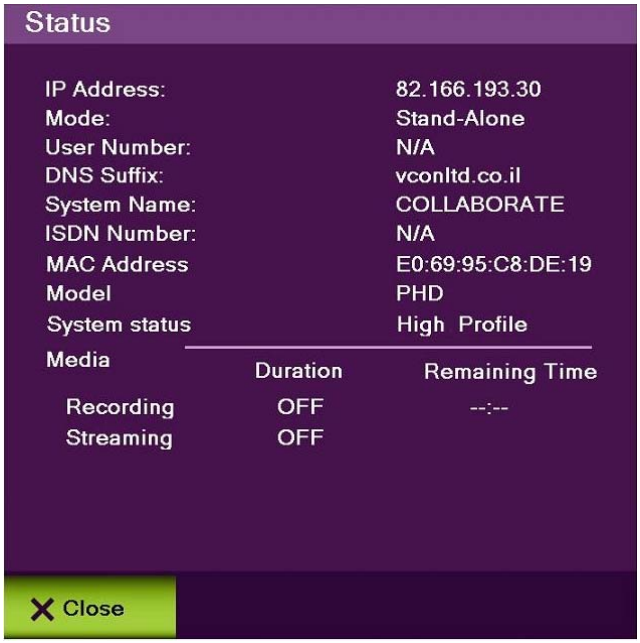
GUI Button	Label	Function
>> Next	Next	Continue to the next step
>> Finish	Finish	Finish and close a configuration wizard/dialog

DISPLAYING SYSTEM INFORMATION

Whenever the COLLABORATE Room unit is turned on, you can view the system status details. Different details are displayed when the unit is in idle state, in recording mode, or in an ongoing videoconference session.

To display the current system status details:

- Press **Status** ( ) on the remote control. The Status window appears.



When COLLABORATE Room is in idle state, the Status window displays the following information:

- **IP Address** – IP address of the COLLABORATE Room unit, as automatically assigned by the DHCP server or as manually configured via **Settings>System** (static IP). You can use this IP address to access and manage the unit via a browser (see Accessing COLLABORATE Room via Browser)
- **Mode** – The current operation mode:
  - **Stand-Alone** – The unit is not connected to a COLLABORATE Central server or a gatekeeper
  - **COLLABORATE Central** – The unit is connected to a COLLABORATE Central server

    - **Gatekeeper** – The unit is connected to a gatekeeper server.
- **User Number** – The user number used to identify the unit if a COLLABORATE Central server or a gatekeeper is used
- **DNS Suffix** – Suffix used for the DNS addressing by COLLABORATE Room
- **System Name** – System name as defined in the system settings (see System Settings)
- **ISDN Number** – ISDN number that is currently being used (*Optional)
- **MAC Address** – MAC address of the COLLABORATE Room unit
- **Model** – COLLABORATE Room model (SD, HD, FHD, or PHD)
- **System Status** – Indicates if the system can work in High Profile mode
- **Media** – Indicates whether a recording/streaming session currently takes place, and specifies the elapsed duration of the recording/streaming.

NOTE: During a videoconference call, you can display additional/different relevant information by selecting Advanced in the Status window.

Chapter 3: Configuration Basics

IN THIS CHAPTER

This chapter explains the basic configuration options and includes the following sections:

- Entering Your User Details
- Configuring the Camera
- Configuring the Audio
- Configuring the Display

ENTERING YOUR USER DETAILS

You can register your personal contact details so that they will appear publicly in outgoing calls instead of your IP address.

To set the user settings:

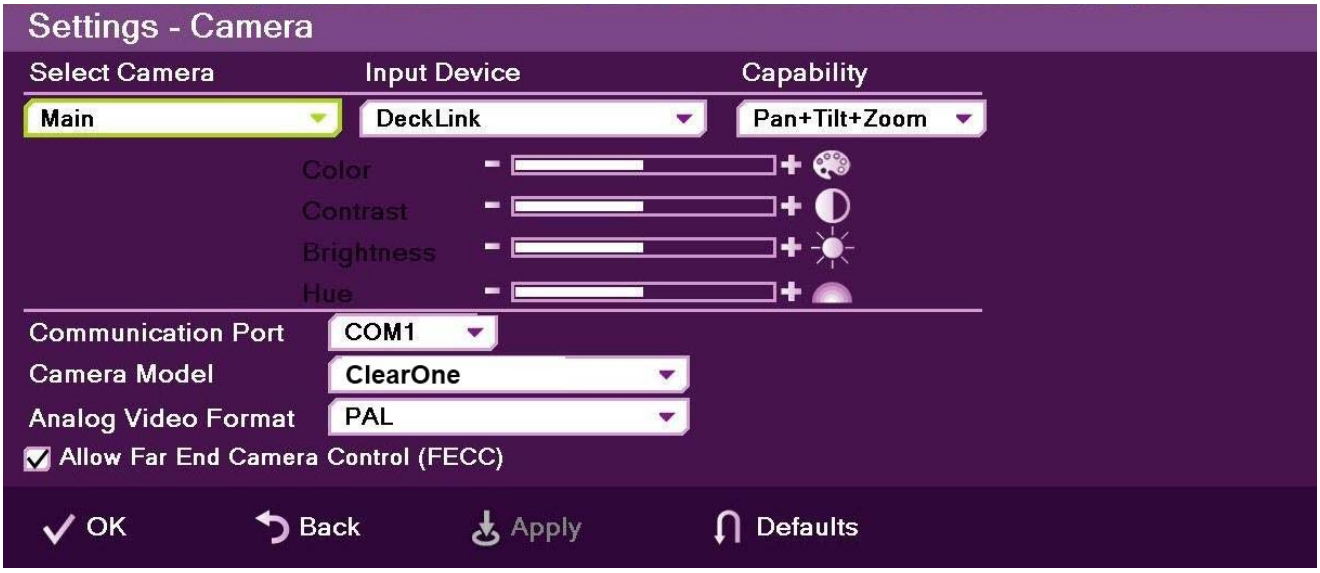
1. Select **Settings>General>User**. The User Settings window appears.
2. In the User Settings window, enter the following details:
   - **First Name** – Type your first name
   - **Last Name** – Type your last name
   - **Company** – Type your company details
   - **Email Address** – Type your email address
3. Select **Apply**.

CONFIGURING THE CAMERA

Before you begin videoconferencing, you need to make sure that the cameras connected to COLLABORATE Room are properly configured. Cameras are configured via the Camera Settings window.

To access the camera settings:

4. Press **OK** on the remote control. The main menu appears.
5. Using the remote control's joystick, select **Settings> Camera**, and then press **OK**. The Camera Settings window appears.



To configure the camera settings:

1. In the Camera Settings window, select the correct options from the **Camera**, **Input Device**, and **Capability** drop-down lists.

   NOTE: COLLABORATE Room supports PTZ cameras only.

2. Optional: Set the percentage (%) of **Color**, **Contrast**, **Brightness**, and **Hue**. You can leave the default settings of these parameters unchanged.
3. Specify the **Communication Port** you are using (default is COM1).
4. Select the correct option from the **Camera Model** and **Analog Video Format** drop-down lists.

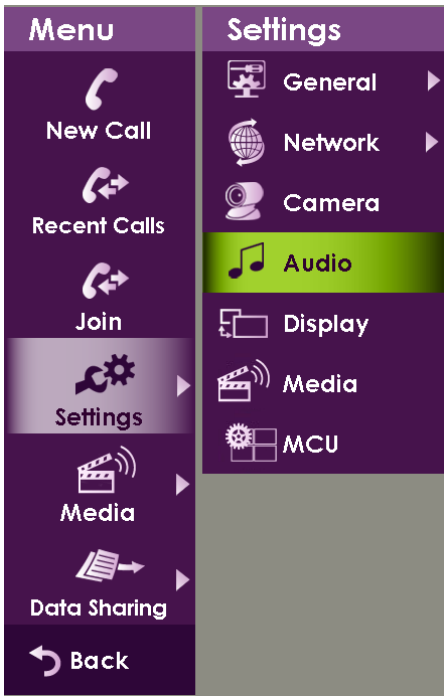
5. For FHD model only: Select the **Camera Resolution** according to your camera settings (1080p/30 or 720p/60).
6. Select the **Allow Far End Camera Control (FECC)** check box to enable the remote side to control your camera (unavailable when working with SIP).
7. Select **Apply** to apply the changes without leaving this window, or select **OK** (in the GUI) to save the changes and close the Camera Settings window.

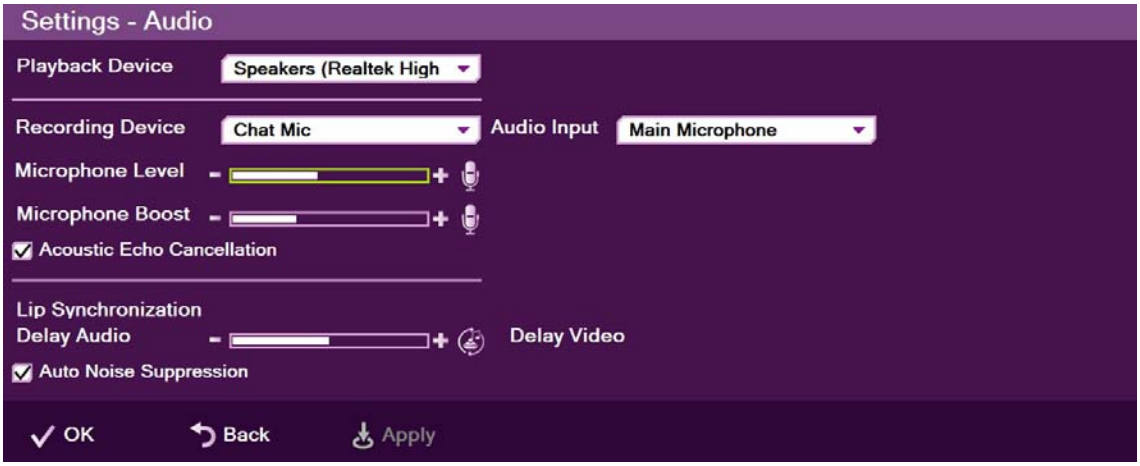
CONFIGURING THE AUDIO

The audio input/output must be configured so that you will be able to hear and be heard properly in videoconferences.

To access the audio settings:

1. Press **OK** on the remote control. The main menu appears.
2. Using the remote control's joystick, select **Settings> Audio**, and then press **OK**. The Audio Settings window appears.





To configure the audio settings:

1. In the Audio Settings window, set the following properties of the selected audio input. USB devices can be used if the system supports external USB hardware.
   - **Playback Device** – Select a playback device from the list.
   - **Recording Device** – Select a recording device from the list.
   - **Audio Input** – ClearOne Chat Mic connected to USB Port.
   - **Microphone Level** – Adjust the microphone sensitivity level in percentage (%).
   - **Microphone Boost** – Increase the microphone level.
   - **Acoustic Echo Cancellation** – Select the check box to prevent echo when the microphone and speaker are in the same room. Disable this feature when it is supported by an external device.

     When using CHAT 150, CHATAttach 150, CONVERGE Pro or INTERACT AT Mixer with COLLABORATE Room, Acoustic Echo Cancellation (AEC) option should be unchecked for better audio performance.
   - **Lip Synchronization** – If the voice you hear is not synchronized with the lip movement in the video display, move the slider as follows:
     - Towards **Delay Video** if voice is heard after the lip movement
     - Towards **Delay Audio** if you see the appropriate lip movement after you hear the voice.
     - **Auto Noise Suppression** – Suppress unwanted background noises. Disable this feature when it is supported by an external device.
2. Select **Apply**.

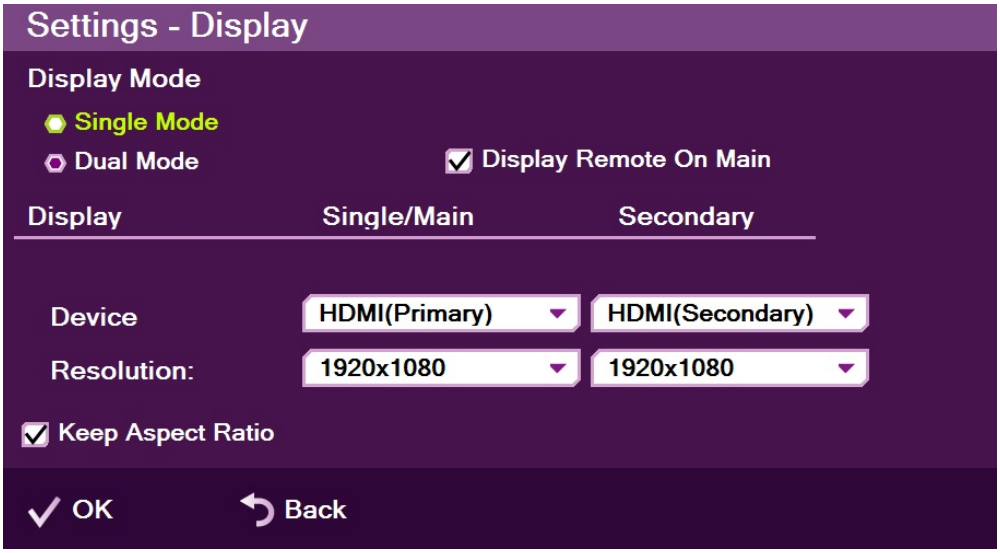
CONFIGURING THE DISPLAY

The display settings determine the method by which video is displayed on the screen. Adjust the display settings depending on the room you are using for videoconferencing and on your distance from the screen.

NOTE: The term "screen" refers to any type of monitor you are using (CRT, LCD, and so on).

To access the display settings:

1. Press **OK** on the remote control. The main menu appears.
2. Using the remote control's joystick, select **Settings> Display**, and then press **OK**. The Display Settings window appears.



To configure the basic display settings:

1. In the Display Settings window, set the following options:
   - **Display Mode** –
     - **Single Mode** – Both videoconference parties are displayed on a single screen.
     - **Dual Mode** – Conferences are displayed on two screens. This option is available only when two screens are connected.
   - **Device** and **Resolution** – Select an option from the lists.
   - **Keep Aspect Ratio** – Select this option to keep the original aspect ratio on screens that have different aspect ratio.
2. Click **OK**.

Chapter 4: Videoconferencing

IN THIS CHAPTER

This chapter explains the videoconferencing basics and options using COLLABORATE Room, and includes the following sections:

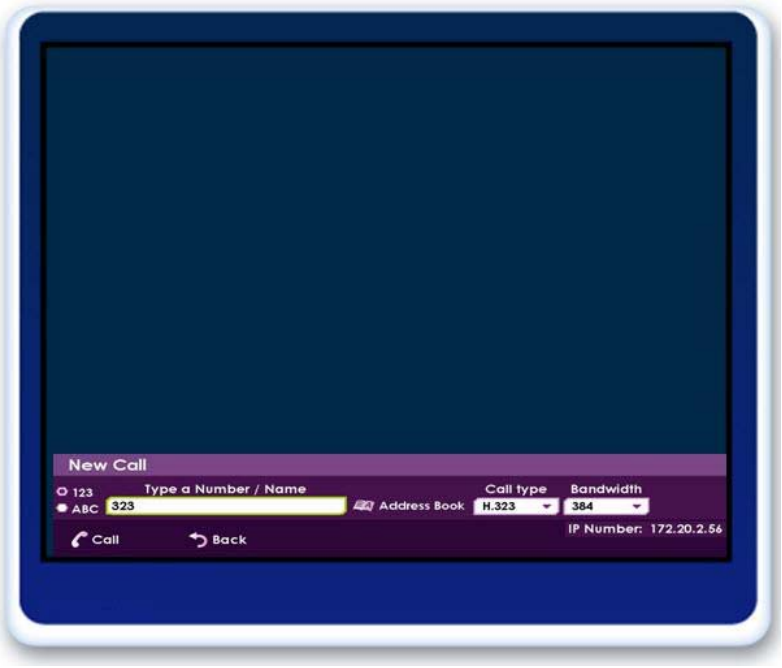
- Starting Calls
- Auto-Answering Calls
- Ending Calls
- Muting the Video
- Switching Image Modes
- Switching Call View Modes
- Using Picture-In-Picture (PIP) Modes
- Call State Indications
- Using Call Tones
- Recording and Streaming
- Data Sharing
- Using Multicasting

STARTING CALLS

You can start a manual call to an ISDN line number or a network IP address that you type in the New Call bar.

To start a call using the manual dialer:

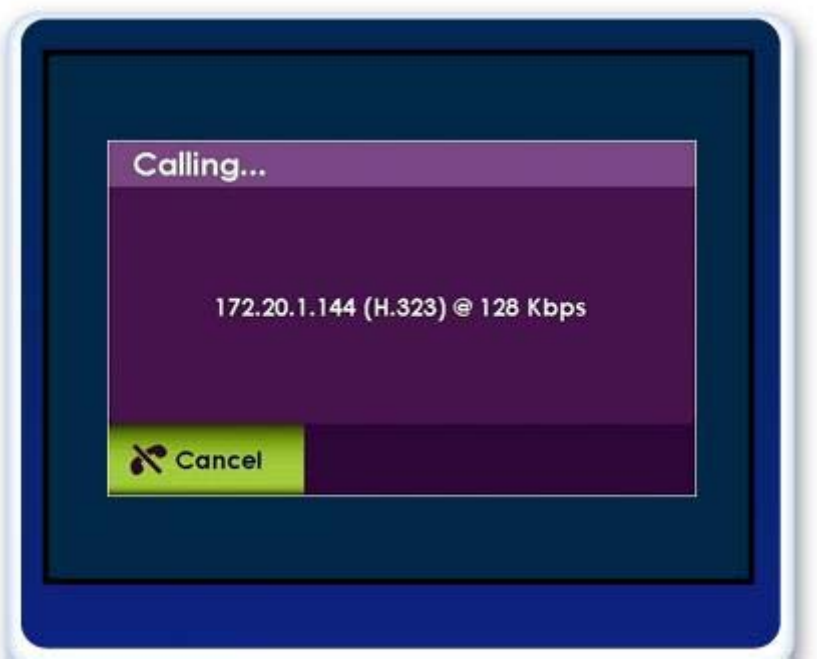
1. Select **New Call** on the main menu. The New Call bar appears.



2. Select the type of call you want to make:
   - **H.323** or **SIP** – an IP-based call via the connected local network (LAN).
   - **ISDN** – a call via ISDN line(s). The ISDN line(s) must be preconfigured via Settings (for more information, see ISDN Settings).
3. In the **Type** a **Number**/**Name** field, type the **IP address** or **ISDN number** to which you want to call. Alternatively, instead of an IP address, you can also use an Alias, E.164 number, or a DNS address (if such are defined on your network).
   - To type numbers, make sure that the **123** option is selected.
   - To type letters, make sure that the **ABC** option is selected.
4. Select the maximum bandwidth for the call or use the default.

NOTE: The maximum bandwidth of a single ISDN line is 128 kbps. The maximum bandwidth of four concurrent lines is 512 kbps.

5. Select **Call** in the GUI or press the **Make Call** (green button) on the remote control. The Calling screen appears.



When the call is answered on the far end, the system switches to Call mode.

AUTO-ANSWERING CALLS

The auto-answer option is found in the Call Settings window (see Call Settings).

When the auto-answer option is not selected and an incoming call is received, a message is displayed on the screen. You can accept or reject the call using the buttons on the remote control, or via the screen message (Yes/No).

NOTE: Auto-answering does not apply to MCU calls. (To configure auto-answering in MCU sessions, see MCU Settings.)

ENDING CALLS

You can disconnect the current videoconference call at any time.

To end the current call:

- On the remote control, press the red **End Call** button,

  – or –

- Select **Hang Up** in the GUI and then press **OK** on the remote control.

MUTING THE VIDEO

Muting during a videoconference is a preference which is selected via the remote control.

When you press **Mute Video** during a call, the remote side sees the Mute Video BMP image, which indicates that your video has been muted.

SWITCHING IMAGE MODES

When interacting with the remote side, two image modes are available: Display mode and Far End mode.

DISPLAY MODE

When you want to switch between the remote and local display on your screen, toggle the remote and local displays by pressing **Display** on the remote control. The remote and local displays switch, enabling a quick presentation change.

FAR END MODE

You can control the view at the Far End camera. By pressing Far End you can control the camera of the remote person you are having a conversation with. (This option is not available for SIP calls.)

SWITCHING CALL VIEW MODES

Depending on the type of screen and video interface you are using (DVI/HDMI), a call may be displayed in single, dual or presentation mode.

SINGLE MODE

A single screen showing the output of the local video camera in the PIP screen area (see Using Picture-In-Picture (PIP) Modes) and the output of the remote video camera on the main screen area.

DUAL MODE

Two screens: one showing the output of the local video camera, and a second screen showing the output of the remote video camera.

Presentation Mode

When recordings or files are displayed in data sharing mode, the remote image is shown in a PIP area, while the recordings/files are presented on the main screen area.

When sharing data using a laptop, the PIP mode is not available and the system switches to "Presentation Only" mode. Since the laptop is connected via a datapoint (VGA), viewers see whatever is presented on the laptop.

USING PICTURE-IN-PICTURE (PIP) MODES

When a conference begins, the local video appears on the monitor in a small rectangular inset located in the upper left corner of the larger remote video display. This display mode is called Picture-In-Picture (PIP).

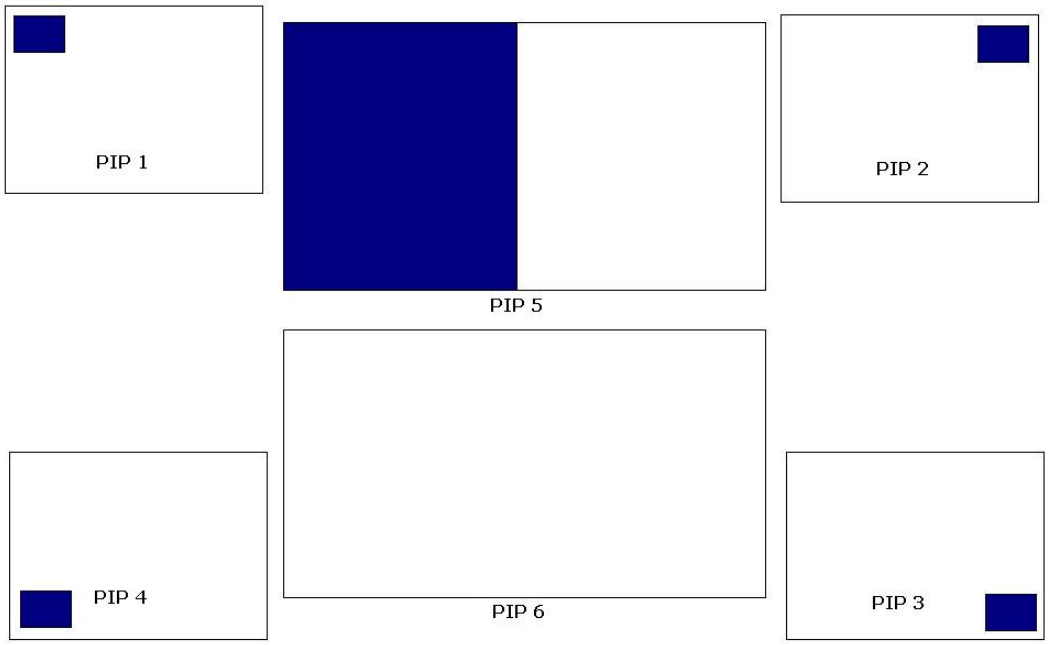
Each time you press the PIP button on the remote control, the PIP image rotates counter-clockwise to the next corner of the screen. Pressing the PIP button after the PIP completes a rotation to all corners then hides the PIP image, and starts again on a subsequent button press.

The default video mode is **PIP 1**, in which the local caller's video is displayed in the small **upper-left** corner, while the remote person is viewed in the large area of the screen. The other modes are:

- **PIP 2** – The local caller is viewed in the small **upper-right** corner, while the remote person is viewed in the main area of the screen.
- **PIP 3** – The local caller is viewed in the small **lower-right** corner, while remote person is viewed in the large area of the screen.
- **PIP 4** – The local caller is viewed in the small **lower-left** corner, while remote person is viewed in the large area of the screen.
- **PIP 5** – The local caller is viewed on half the screen and the remote person is viewed on the other half, also known as side-by-side view.

  NOTE: When data is shared, the remote video and the data are displayed side by side on the screen.

- **PIP 6** – The local caller sees only the remote person.



CALL STATE INDICATIONS

Various call states are represented by icons on the screen when videoconferencing is taking place.

GUI Icon	Indication
	The current call is encrypted
	The local microphone is muted
	The local speaker is muted
	Far End mode is on (you can control the remote side camera)
	Local network disconnection
	Unsuccessful COLLABORATE Central registration

GUI Icon	Indication
	Successful COLLABORATE Central registration
	Unsuccessful gatekeeper registration
	Successful gatekeeper registration
	Currently multicasting
	MCU VS layout mode
	Currently recording
	Currently streaming

USING CALL TONES

When making calls the call operator can request a Password or DTMF tone to connect.

OPERATOR REQUEST FOR PASSWORD

The Operator can request you to access a conference password to proceed with the call.

To enter a conference password:

- Use the remote control, and press the numeric pad.

  The screen shows DTMF message: "DTMF signal **** sent" representing the numbers pressed on the keypad.

Operator Request for Telephone Tone

The Operator can request you to connect using a dial-tone to proceed with the call.

To enter DTMF tone:

- Use the remote control, dial using the numeric pad.

  The screen shows DTMF message: "DTMF signal **** sent" representing the numbers pressed on the keypad.

RECORDING AND STREAMING

The recording and playback functionality allows you to record idle, point-to-point and multipoint (MCU based) sessions, and view them at a later time. You can share the recorded file during a videoconference with the parties connected, through the data sharing option.

Through the COLLABORATE Room Web access system, remote users can view all previously recorded sessions and download them for later viewing with Windows Media Player. Alternatively, using streaming, remote users can view a live broadcast of whatever the camera and microphone are currently transmitting.

You can also view any previously recorded session when you are not in a call by selecting the file from the stored recordings list. For more information about the recording settings, see Recording and Streaming Settings.

Start Recording

You can start recording a call at any point during a call or idle session.

To start recording:

- Select **Media>Start Record**. The message "**Recording started**" appears for a few seconds, and the Record icon appears for the duration of the recording.

NOTE: The Record icon ( ) appears on the remote participant's side to indicate that the videoconference is being recorded (legal requirement).

Stop Recording

You can stop an on-going recording whenever you want.

To stop recording:

1. Select **Media>Stop Record**. The message "**Do you want to stop recording?**" appears.
2. Select **Yes**. The "Recording Stopped" message appears.

> **NOTE: When recording in idle mode (not during a videoconference), you can stop the recording by pressing the End Call button on the remote control. A confirmation message appears and requires you to select Yes.**

View Recording

You can view recordings in either of the following ways:

- Via the Web interface
- Browse the locally saved recordings by selecting **Data Sharing> File**.

> **NOTE: You can switch the Recording display so that the data is on the big screen, and the remote camera is displayed on in the PIP.**

Start Streaming

Session streaming allows any remote system with the Microsoft Media Player application to view played recordings or whatever your camera/microphone are transmitting from the COLLABORATE Room system.

To start streaming to remote users:

- Select **Media>Start Stream**. The message "Streaming Started" appears for a few seconds, and the Streaming Icon appears for the duration of the streaming.

> **NOTE: Refer to Web Access and Management for information on recording and streaming via the Internet.**

Stop Streaming

You can stop the streaming when it is no longer needed.

To stop streaming:

1. Select **Media>Stop Stream**. The message "**You are currently streaming. Do you want to stop all?**" appears.
2. Select **Yes**. The message "Streaming Stopped" appears.

> **NOTE: When streaming in idle mode (not during a videoconference), you can stop the streaming by pressing the End Call button on the remote control. A confirmation message appears and requires you to select Yes.**

View Streaming

You can view the streaming in either of the following ways:

- From the COLLABORATE Room Web management (see Web Access and Management) by clicking **View Stream** button on the left menu. This takes you to a page with the media player embedded in the webpage, displaying the ongoing session.
- On your network-connected PC, use the following address using Windows Explorer, or via **File>Open URL** in the Windows Media Player: HTTP://IP_ADDRESS:12100
  - IP_ADDRESS = IP address of the COLLABORATE Room unit
  - 12100 = the port number, as defined in Recording and Streaming Settings.

DATA SHARING

Data Sharing can be accessed via the menu or via **Data** on the remote control. Data Sources are selected inside the Data Sharing menu. Press **Data** a second time to stop the data sharing.

Choosing the Data Source

In order for the system to recognize data sources, you need to be connected to a USB flash drive, a laptop, or have recorded files saved locally in your system.

To choose a data source:

1. Select **Data Sharing** on the main menu. The Data Sharing menu opens.
2. Depending on the connected data sources, select either **Laptop** or **File**.

Connecting to a Laptop

The moment a device such as a laptop is connected to COLLABORATE Room via a data point, the Laptop option is enabled. The system will be connected to the laptop in "presentation only" mode (see Presentation Mode).

When you select Laptop as data source, the screen switches to the data on the laptop.

Connecting a USB Flash Drive

You can view and share files that are stored on a portable USB flash drive.

To view and share files from a USB flash drive:

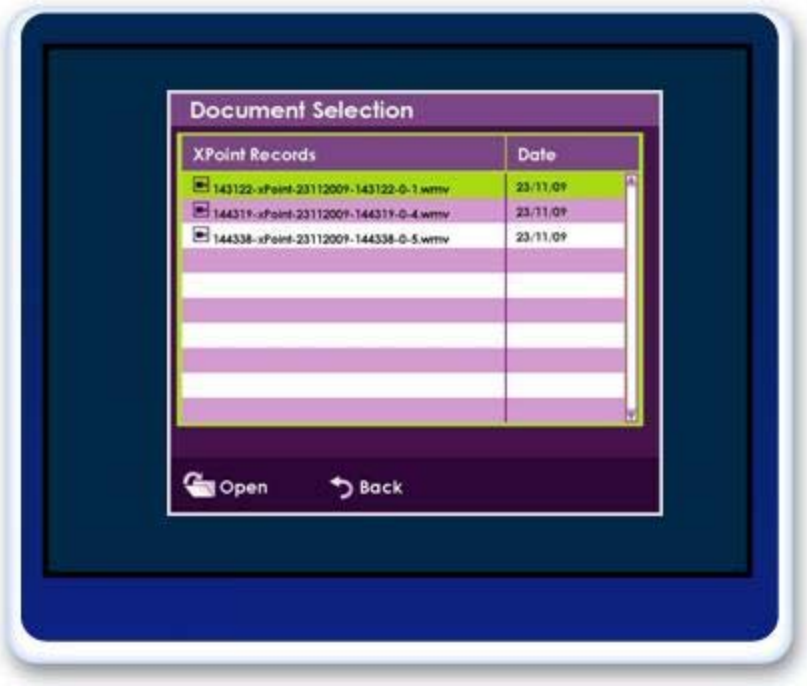
1. Insert a USB flash drive to one of the COLLABORATE Room USB ports. The message "**USB device inserted**" is displayed.
2. Select **Data Sharing>File**. The Document Selection window appears.
3. Select the file you want and then press OK on the remote control. The following files are supported: *.jpg, *.jpeg, *.gif, *.png, *.tiff, *.tif, *.bmp, *.wmf, *.mpg, *.mpeg, *.wmv, *.avi, *.pps, *.ppt, *.doc, *.rtf, *.xls, *.xlsx, *.pdf, *.pptx, *.ppsx, *.docx.
4. Select **Open**. The file is displayed. If the file is opened during a videoconference, it is shared with all the viewers.

VIEWING RECORDINGS

Recordings can be viewed when the system is idle. When opened during a videoconference, recordings are shared.

To view recorded files:

1. Select **Recording**. The Document Selection window appears.



2. Select the recorded file you want and then press **OK** on the remote control.
3. Select **Open**. The file is displayed and if opened in a videoconference, it is shared with all the viewers.

> **NOTE: To stop sharing the opened file, press Back on the remote control, or select Stop Data from the main menu.**

USING MULTICASTING

Session multicasting allows you to multicast your session using the multicasting networking transport technology, which allows users to send a video stream that can be received by multiple recipients, all listening on a single multicast address. Multicasting a session from your COLLABORATE Room allows numerous passive viewers to view the session. This is typically used at lectures, or any session that passive viewers can benefit from. Multicast sessions can be viewed by all ClearOne endpoints, the free ClearOne Broadcast Viewer, and the Apple QuickTime viewer.

You can join a multicast call as a passive participant. You can hear and see the call, but you cannot contribute to it.

Setting up Multicast Calls

See Multicast Settings.

Joining a Multicast Call as a Passive Participant

To join a multicast:

1. Press **OK** on the remote control. The main menu appears.
2. Select **Join** on the main menu. The Join Multicast window appears.

3. Select a multicast from the **Ongoing Multicasts** list and press **Join Multicast**.

Starting/Stopping a Multicast Call

To stop or start a multicast:

1. Press **OK** on the remote control. The main menu appears.
2. Select **Media> Start (or Stop) Multicast**.

Chapter 5: Quick Dialing Methods

IN THIS CHAPTER

This chapter describes the different quick dialing methods that are available in COLLABORATE Room, and includes the following sections:

- Using the Address Book
- Using the Call Log
- Using Speed Dial
- Using Online Directories

USING THE ADDRESS BOOK

The address book enables you to make calls to addresses stored on the local system. You can add frequently used addresses to the address book from where calls can be made directly.

USING THE ADDRESS BOOK VIA THE REMOTE CONTROL

You can select the address book using the remote control.

To select the address book via the remote control:

1. On the remote control, press **Phone Book** ( ). The Address Book window appears.
2. In the Personal tab, select the number to dial, and then press **OK** on the remote control. The number of the contact is copied to the number field in the New Call bar.

   NOTE: When the address book is open, typing a letter in the ABC field causes it to 'jump' to the first letter entered.

3. Press **Make Call** ( ). The Calling screen is displayed.

   When the call is answered on the far end, the system switches to Call mode.

USING ADDRESS BOOK VIA THE COLLABORATE ROOM GUI

You can display the address book using the COLLABORATE Room GUI menus.

To select the address book via the COLLABORATE Room GUI:

1. Select **Settings>General>Address Book**. The Address Book window appears (use the joystick left button to skip to the left tabs).
2. In the Personal tab, select the number to dial, and then press **OK** on the remote control. In the New Call bar, the address of the contact is copied to the number field.

   NOTE: When the address book is open, typing a letter in the ABC field causes it to 'jump' to the first letter entered.

3. Select **Call** (

). The Calling screen is displayed.

   When the call is answered on the far end, the system switches to Call mode.

USING THE PERSONAL ADDRESS BOOK VIA THE NEW CALL BAR

You can select the personal address book from the New Call bar.

To select the personal address book via the New Call bar:

1. Select **New Call** on the main menu. The New Call bar, appears.
2. In the New Call bar, select **Address Book** (

). The Address Book window appears.
3. In the Personal tab, select the number to dial, and then press **OK**. In the New Call bar, the address of the contact is copied to the number field.

   NOTE: When the address book is open, typing a letter in the ABC field causes it to 'jump' to the first letter entered.

4. Select **Call** (

) or press **Make Call** (
). The Calling screen is displayed.

   When the call is answered on the far end, the system switches to Call mode.

Adding Entries to the Personal Address Book

You can add frequently used addresses to the personal address book from where calls can be made directly.

To add a new contact to the personal address book:

1. In the personal address book, select **Add** and press **OK**. The Name/Address bar opens.
2. Type in the new contact's name and IP address, and then select **Save**. The new contact is added to the address book.

> **NOTE: You can also set the dialing method (H.323, SIP or ISDN) and the bandwidth that you want to use specifically for the contact that you add. If you choose ISDN, the number to be dialed must be predefined (see ISDN Settings).**

Editing Entries in the Personal Address Book

You can edit frequently used numbers already in the address book and save them for repeated use.

To edit a contact's details in the personal address book:

1. In the personal address book, select the entry you want to edit and then press **OK** on the remote control.
2. Select **OK** in the GUI. The Name/Address bar opens.
3. Edit the contact name and IP address, and then select **Save**.

> **NOTE: If necessary, you can change the dialing method (H.323, SIP or ISDN) and bandwidth that are used specifically for the contact that you edit. If you choose ISDN, the number to be dialed must be predefined (see ISDN Settings).**

Deleting Entries from the Personal Address Book

You can delete and thus manage personal address book entries when they are no longer in use.

To delete a contact from the address book:

1. In the address book, select the number you want to delete, select **Delete** and then press **OK**. The following message is displayed: "**Are you sure?**"
2. Select **Yes** to delete, or No to cancel.

USING THE CALL LOG

Log Entries are automatically logged to the Call Log when an outgoing call is made or when an incoming call is received. Add Log Entries to the address book, or delete them from the Call Log.

NOTE: Log entries cannot be edited.

USING THE CALL LOG VIA THE REMOTE CONTROL

You can select Call Log using the remote control.

To select the Call Log via the remote control:

1. On the remote control, press **Call Log** ( ) – or – on the Main Menu, select **Recent Calls**. The Call Log window appears.
2. Select the number to dial. The contact number is copied to the New Call field.
3. Select **Call** (

) or press **Make Call** ( ). The Calling screen is displayed.

   When the call is answered on the far end, the system switches to Call mode.

DISPLAYING THE CALL LOG FROM THE ADDRESS BOOK

You can select Call Log via the address book.

To display the call log via the address book:

- In the address book, select **Call Log** by pressing left with the joystick and scrolling down.

ADDING A CALL LOG ENTRY TO THE ADDRESS BOOK

You can add Call Log to the Address book for reuse later.

To add call log entry to the address book:

1. In the Call Log, select the entry you want to add to the address book and then press **OK** on the remote control.
2. Select **Add**. The Name/Address bar appears.
3. Edit in the contact Name or Address if needed, and then select **Save**. The log entry is added to the address book.

Clearing the Call Log

You can delete and thus manage Call Logs when you do not require them any longer.

To delete a call log or clear the entire log:

1. In the Call Log window, select which log entry to delete.
2. Select **Delete** to delete just the selected entry, or **Clear All** to delete all entries, and then press **OK**. The following message is displayed when clearing all: "**Are you sure?**"
3. Select **Yes** to delete, or **No** to cancel.

USING SPEED DIAL

Add up to 9 frequently used numbers/addresses to the Speed Dial. You can add, Edit or Delete Speed Dial entries.

Using Speed Dial via the Remote Control

You can use speed dial using the remote control.

To select speed dial via the remote control:

1. Enter the speed dial index number and press **Make Call**, or press **Speed Dial** . The Speed Dial window opens.
2. Select the number to dial. The contact number is copied to the New call field.
3. Select **Call** ( ) or press **Make Call** ( ). The Calling screen is displayed. When the call is answered on the far end, the system switches to Call mode.

Using Speed Dial via the Address Book

You can use speed dial via the address book.

To select speed dial via the address book:

1. In the address book, select **Speed Dial** by pressing left with the joystick and scrolling down.
2. Select the number to dial, and then press **OK**. The contact number is copied to the new call field.
3. Select **Call** ( ) or press **Make Call** ( ). The Calling screen is displayed. When the call is answered on the far end, the system switches to Call mode.

Adding numbers to the Speed Dial

You can add the frequently used numbers to speed dial. The speed dial number is added to the speed dial list and marked from 1 to 9 (you can define up to 9 speed dial numbers).

To add numbers to the speed dial:

1. In Speed Dial, select **Add** and press **OK**. The Name/Address bar opens.
2. Type the contact's name and address, and then select **Save**.

Editing Speed Dial Numbers

You can edit frequently used numbers already in the Speed Dial.

To edit a speed dial number:

1. Select the number you want to edit in Speed Dial, select **Edit** and press **OK**. The Name/Address bar opens.
2. Edit the contact's name and address, and then select **Save**.

Deleting Speed Dial entries

You can delete speed dial entries when they are no longer needed.

To delete a speed dial entry or all entries:

1. In Speed Dial, select the number you want to delete.
2. Select **Delete** to delete just the selected entry, or **Clear All** to delete all entries, and then press **OK**. The following message is displayed: "**Are you sure?**"
3. Select **Yes** to delete, or No to cancel.

USING ONLINE DIRECTORIES

Online Directory is an external directory which can be used for calling. If you are registered in the online directory, you can view the Online Directory in the address book under the Online Directory tab.

NOTE: Online directory entries cannot be edited or deleted. In COLLABORATE Central, Online Directory Settings → General → Directory is disabled.

ACCESSING AN ONLINE DIRECTORY VIA THE REMOTE CONTROL

You can access the address book using the remote control.

To access the address book via the remote control:

1. On the remote control, press the address book button. The address book opens.
2. Select the Directory tab, and on the number to dial press **OK**. In the New Call bar, the address of the contact is copied to the number field.

   NOTE: When the address book is open, typing a letter in the ABC field causes it to 'jump' to the first letter entered.

3. Select **Call** (

) or press **Make Call** ( ). The Calling screen is displayed.

   When the call is answered on the far end, the system switches to Call mode.

ACCESSING THE ONLINE DIRECTORY VIA THE ADDRESS BOOK

You can access Online Directory via the address book.

To access the Online Directory via the address book:

1. In the address book, select **Online Directory** by pressing left with the joystick and scrolling down.
2. Select the Directory tab, select the number to dial and press **OK**. In the New Call bar, the address of the contact is copied to the number field.
3. Select **Call** (

) or press **Make Call** ( ). The Calling screen is displayed.

   When the call is answered on the far end, the system switches to Call mode.

Chapter 6: Advanced Settings

IN THIS CHAPTER

This chapter covers the advanced settings for COLLABORATE Room, and includes the following sections:

- Administration Settings
- Call Settings
- Call Security
- Online Directory Properties
- H.323 Protocol Settings
- SIP Protocol Settings
- Quality of Service (QoS) Settings
- License Settings
- ISDN Settings
- System Settings
- Multicast Settings
- Recording and Streaming Settings
- MCU Settings
- Firewall and NAT Settings

ADMINISTRATION SETTINGS

The administration settings define general system properties and also allow you to set password protection for restricting management access when required.

To configure administration settings:

1. Select **Settings>General>Admin**. The Admin Settings window appears.

2. In the Admin Settings window, set the following options and parameters
   - **Language** – Select the desired language for the user interface. Press **OK** or **Apply** for the change to take place immediately.
   - **Enable Password for Advanced Configuration** – Selecting this option restricts the access to the advanced configuration options of the unit, which are: Admin (the current window), H.323, System, Calls and ISDN.
     - **Password** – Enter the password that will restrict the access to the advanced configuration. When typing the password, each letter is visible for one second and then turn into an asterisk (*).
   - **Advanced Services** – opens a new window with the following options:
     - **Enable Web Server** – Select this option to allow Web access to the COLLABORATE Room unit via a browser. If you enter a password, Web users will be required to enter the same password when they access the unit (for more information, see Web Access and Management).
     - **Enable Telnet Interface** – Select this option to allow access to the COLLABORATE Room unit via a Telnet-based terminal. If you enter a password, Telnet users will be required to enter the same password when they access the unit.
   - **Time** – If not already set, enter the current time.
   - **Date** – If not already set, enter the current date.

- **Sleep Timeout** – Duration of idle time (in minutes) before the system goes into sleep mode.

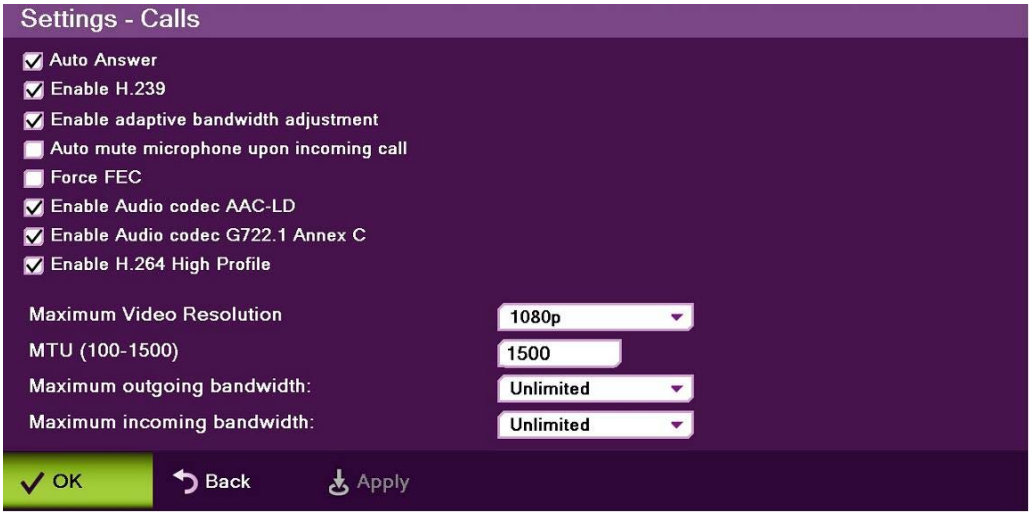
3. Select **Apply**.

CALL SETTINGS

In the Call Settings window you can define miscellaneous technical settings that affect how videoconference calls are performed by default.

To configure call settings

1. Select **Settings>General>Calls**. The Call Settings window appears.



2. In the Call Settings window, set the following options and parameters
   - **Auto Answer** – Enables auto answering of incoming calls. Does not apply to MCU or IMC calls.
   - **Enable H.239** – Enables data sharing protocol.
   - **Enable adaptive bandwidth adjustment** – Enables videoconferences to proceed at reduced bandwidth if the network is congested. Deselecting this option maintains a constant quality to the session, but it may cause network problems.
   - **Auto mute microphone upon incoming call** – Enables auto muting the microphone for incoming calls
   - **Force FEC** – Force Forward Error Correction (FEC) – Forwards an error-correction code instead of automatically adjusting the bandwidth.
   - **Enable Audio Codec AAC-LD** – Audio Codec: audio compression format designed to combine the advantages of perceptual audio coding with the low delay necessary for two-way communication.
   - **Enable H.264 Profile** – When selected, enables the system to operate in high profile mode
   - **Maximum Video resolution** – Set the maximum video resolution

- **Enable Audio Codec G722.1 Annex C** – Audio Codec: wide-band compression algorithm provides higher-than-toll quality speech. The codec operates between a wide-band, 50Hz to 7kHz signal range, at the G.722.1 standard bit rate of 24kbps and 32kbps. GAO's G.722.1 algorithm is in the form of fixed-point arithmetic and is based on the Modulated Lapped Transform (MLT).
- **MTU (100–1500)** – Set the designated MTU (Maximum Transfer Unit) value. The default value is 1200. Applies only to RTP streams.
- **Maximum Outgoing Bandwidth** – Maximum upload bandwidth (0 for unlimited)
- **Maximum Incoming Bandwidth** – Maximum download bandwidth (0 for unlimited)

3. Select **Apply**.

CALL SECURITY

Calling securely requires setting the encryption protocol or using defaults which include automatic encryption. Alternatively, you can disable the encryption if it is not needed.

To configure security settings

1. Select **Settings>General>Security**. The Security window appears.
2. In the Security Settings window, select from the following options:
   - **Automatic** – The default option; enables encryption automatically
   - **AES** – An encryption algorithm included in the H.235 security protocol
   - **No Encryption** – No encryption method will be used.
3. Select **Apply**.

   Calls that are made using encryption will have a lock icon on the right-bottom corner of the screen.

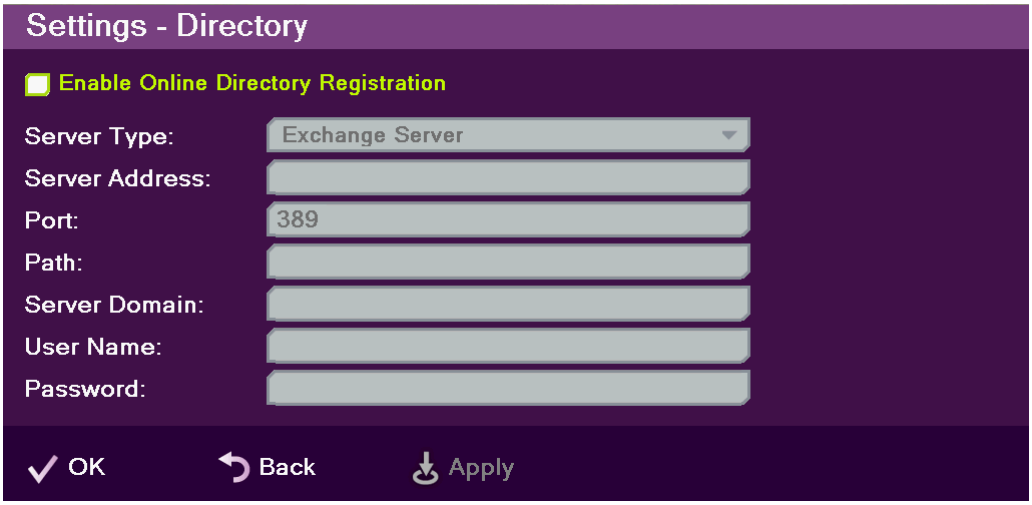
ONLINE DIRECTORY PROPERTIES

Online directories are lists of contacts (such as Internet Location Server, or ILS) whose videoconferencing systems are online and registered with that directory. If your system is not registered with a COLLABORATE Central®, the Directory Settings provide a way to register with an online directory.

NOTE: Directory settings are available only in COLLABORATE Room systems that are not managed by a ClearOne COLLABORATE Central®.

To configure the online directory settings:

1. Select **Settings>General>Directory**. The Directory Settings window appears.



2. In the Directory Settings window, set the following options and parameters
   - **Enable Online Directory Registration** – When selected, this checkbox activates the rest of the fields in this window and enables the Online Directory connection registration.
   - **Server Type** – Select the Online Directory server type. If you are not sure which type to select, consult with your system administrator. An LDAP (Lightweight Directory Access Protocol) server is usually used.
   - **Server Address** – The server's IP address. If an IP is not entered, the following message appears: "You must enter server address in order to continue."
   - **Port** – Number of the port through which the connection to the server is established.
   - **Path** – Folder in which your user information is stored, as created on the Online Directory.
   - **Server Domain** – Server's domain name for the Online Directory.
   - **User Name** – Your user name as defined on the Online Directory server.
   - **Password** – Your access password as defined on the Online Directory server.
3. Select **Apply**.

NOTE: In the Standalone/Gatekeeper mode, either the ILS or iPlanet servers should be installed for the directory. Consult with your system administrator regarding the installation/configuration of these servers.

Server Type	Description	Prerequisites
ILS server	Site Server ILS is a service used for publishing H.323 videoconferencing and telephony users and IP multicast conferences on the network.	System administrator configuration
iPlanet server	Sun's ONE Directory Server (also known as iPlanet) is a scalable distributed directory server for running an enterprise-wide directory	System administrator configuration

Server Type	Description	Prerequisites
	containing lists of people and resources. Administrators can manage a single user-repository for their organization that can be used by multiple applications to both authenticate and retrieve stored information for users such as access levels and user profiles.	

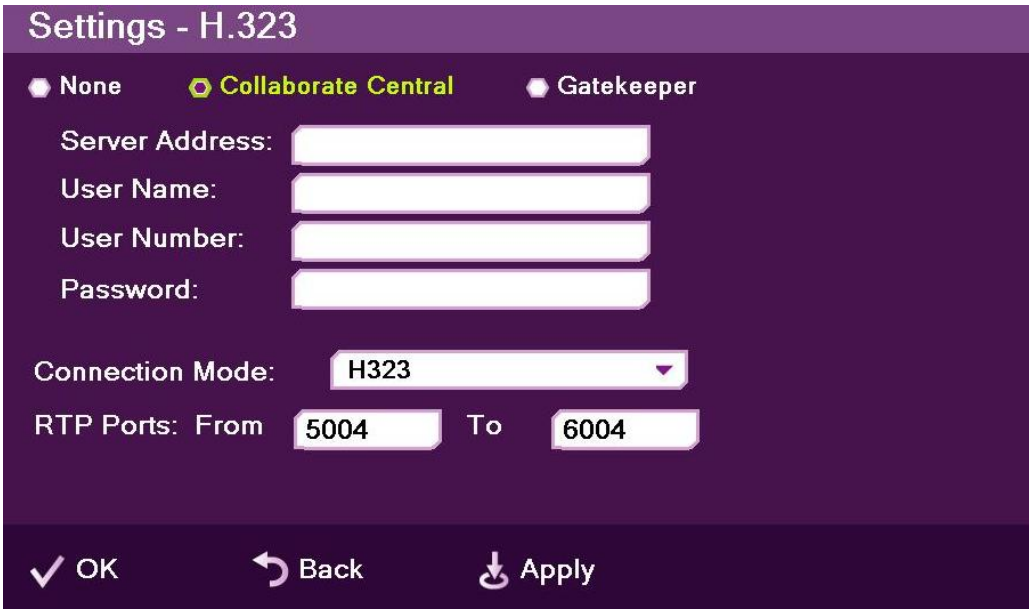
H.323 PROTOCOL SETTINGS

For point-to-point and multipoint videoconferences, the H.323 protocol standard is used for call signaling and control, video/audio transport and control, and bandwidth control . COLLABORATE Room utilizes H.323 to transport video/audio via DNS and NAT addressing, and to communicate/interact with either a COLLABORATE Central server or a standard gatekeeper server, one of which you can choose to work with in order to gain better performance and flexibility in point-to-point and multipoint videoconferences.

NOTE: For more information about ClearOne's COLLABORATE Central server, its installation and configuration, refer to the COLLABORATE Central User Guide.

To configure a connection to a COLLABORATE Central server or to a gatekeeper server:

1. Select **Settings>Network>IP>H.323**. The H.323 Settings window appears.



2. In the H.323 Settings window, set the following options and parameters:
   - **None** – Keep this option selected (selected by default) if you do not want to use a COLLABORATE Central server or a gatekeeper.

- **COLLABORATE Central** – Select this option if you want COLLABORATE Room to communicate/interact with a COLLABORATE Central server and utilize its advanced features. If selected, enter the required details in the following fields:
  - **Server Address** – Enter the IP address of the COLLABORATE Central server.
  - **User Name** – Enter the user name used to log into the COLLABORATE Central server.
  - **User Number** – Enter your user number used for identification on the COLLABORATE Central server. If not entered, the COLLABORATE Central server will automatically generate a number.
  - **Password** – Enter the password used to log into the COLLABORATE Central server.
- **Gatekeeper** – Select this option if you want COLLABORATE Room to communicate/interact with a gatekeeper server. If selected, enter the required details in the following fields:
  - **Server Address** – Enter the IP address of the gatekeeper server.
  - **User Name** – Enter the user name used to log into the gatekeeper server.
  - **User Number** – Enter the user number used for identification on the gatekeeper server.
  - **Password** – Disabled when working with a gatekeeper because gatekeeper authentication is currently not supported.
- **Connection Mode** – Select the protocol you want to use to connect your call.
  - **H.323** - This selection should be selected manually for LAN network connections only when the connection type is known.
  - **H.460** - This selection should be selected manually for network connections over Firewall/NAT only when the connection type is known.
  - **Tunneling (not available when working with a gatekeeper)** - This selection should be selected manually for ClearOne Proprietary Tunneling. The default tunneling port is configured by the System Administrator (see NetPoint/ COLLABORATE Central Administration Configuration Manager).

    NOTE: Changing this setting causes COLLABORATE Room to reload.
- **RTP Ports** – In the two boxes, set the RTP range:
  - **From** – Enter the minimum RTP value.
  - **To** – Enter the maximum RTP value.

3. Select **Apply**.

   NOTE: In COLLABORATE Central mode, the system administrator should configure the LDAP settings for COLLABORATE Central on the server side.

To verify that COLLABORATE Central mode is active:

1. Press **Status** on the remote control and check in the displayed information that a COLLABORATE Central icon appears.
2. Select **Settings>Network>IP>H.323** and check the displayed information.

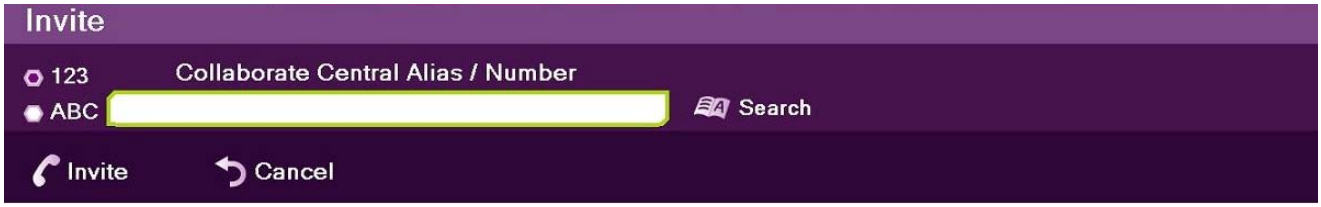
   The New Call IP number shows the extension number that the system received when initiating COLLABORATE Central mode, which is the ID number.

WORKING IN COLLABORATE CENTRAL MODE

In a point-to-point call and when COLLABORATE Central mode is active, you can add another participant to the call without hanging up, i.e. – the call continues while the additional participant is being invited.

To add participants to the call in COLLABORATE Central mode:

1. Select COLLABORATE Central **>Invite**. The Invite call window is displayed.



NOTE: The COLLABORATE Central >Invite option is available on the menu only when COLLABORATE Central mode is active.

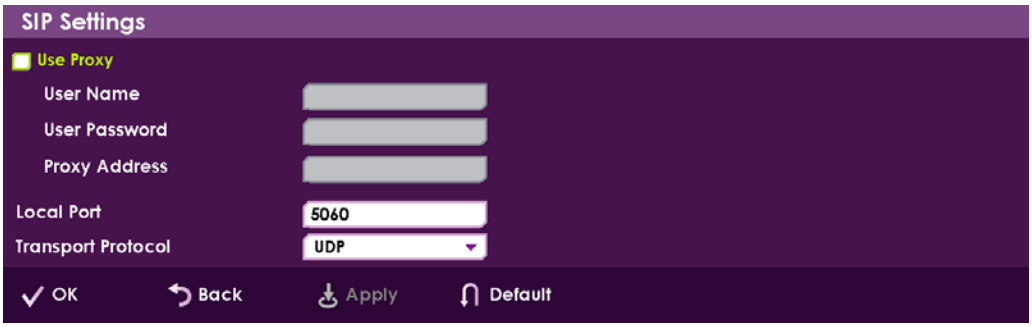
2. Type in the participant COLLABORATE Central alias/IP number, and select **Invite**. The call is connected.

SIP PROTOCOL SETTINGS

SIP is a common communication signaling protocol for VoIP.

To configure SIP settings:

1. Select **Settings>Network>IP>SIP**. The SIP Settings window appears.



2. In the SIP Settings window, set the following options and parameters:
   - **Use Proxy** – Use a proxy server or as stand alone.

- **User Name** – The user name as configured in the proxy server (proxy mode).
- **User Password** – The user password as configured in the proxy server (proxy mode).
- **Proxy Address** – Proxy server IP

- **Local Port** – The SIP port on your computer (the standard is 5060).
- **Transport Protocol** – Select the desired protocol (TCP or UDP).

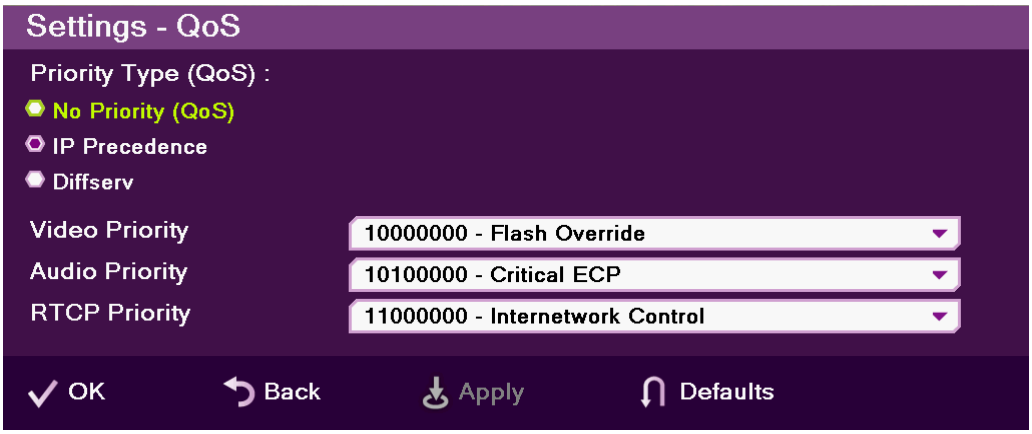
3. Select **Apply**.

QUALITY OF SERVICE (QOS) SETTINGS

The Quality of Service (QoS) settings allow you to define the priorities by which data packets are handled, thus adjusting the quality and priority of video/audio on different networks with different bandwidth capacities, traffic loads, or other limitations.

To configure the QoS definitions:

1. Select **Settings>Network>IP>QoS**. The QoS Settings window appears.



2. In the QoS Settings window, set the following options and parameters:
   - **No Priority (QoS)** – Select this option if QoS prioritization is not required on your network. When selected, this option disables all other options in the QoS Settings window.
   - **IP Precedence** – Select this option if you want to prioritize traffic according to IP precedence. When selected, this option makes available the following settings:
     - **Video Priority** –Select the video traffic prioritization method that best suits your network: **Flash Override**, **Flash**, **Immediate**, **Priority**, or **Routine**.
     - **Audio Priority** – Select the audio traffic prioritization method that best suits your network: **Critical ECP**, **Flash Override**, **Flash**, **Immediate**, or **Priority**.
     - **RTCP Priority** – Select the RTCP traffic prioritization method that best suits your network: **Interwork Control**, **Critical ECP**, **Flash Override**, **Flash**, and **Immediate**.

- **Diffserv** – Select this option if you want to prioritize traffic according to Diffserv parameters. When selected, this option makes available the following settings, with parameters :
  - **Video Priority** – Select the video traffic prioritization method that best suits your network, from **Probability of Timely Forwarding** at level 0 to level 7.
  - **Audio Priority** – Select the audio traffic prioritization method that best suits your network, from **Probability of Timely Forwarding** at level 0 to level 7.
  - **RTCP Priority** – Select the RTCP traffic prioritization method that best suits your network, from **Probability of Timely Forwarding** at level 0 to level 7.

3. Select **Apply**.

LICENSE SETTINGS

You can check your COLLABORATE Room license and functionality details, which were preconfigured at the factory based on your product ordering options.

To view the license settings:

1. Select **Settings>General>License**. The License Settings window appears.
2. In the License Settings window, the following details are shown:
   - **Software Version** – The software and firmware versions installed on the COLLABORATE Room unit.
   - **Features List** – Only the selected (in a checkbox) and grayed-out features are licensed and fully functional. The optional features for COLLABORATE Room are:
     - ISDN
     - Laptop Sharing Support
     - USB Data Share
     - Recording/Streaming
     - MCU
3. Select **OK** to close the window.

ISDN SETTINGS (OPTIONAL)

ISDN (Integrated Services Digital Network) is a protocol that provides video conferencing capabilities over telephone lines. It must be configured if the system is connected through the ISDN infrastructure.

> **NOTE: The ISDN functionality is available only if you purchased a license code and the required peripherals for it . You can skip this section if you did not purchase the ISDN option and if you do not use ISDN lines.**

COLLABORATE Room can register to an ISDN point via the IP LAN.

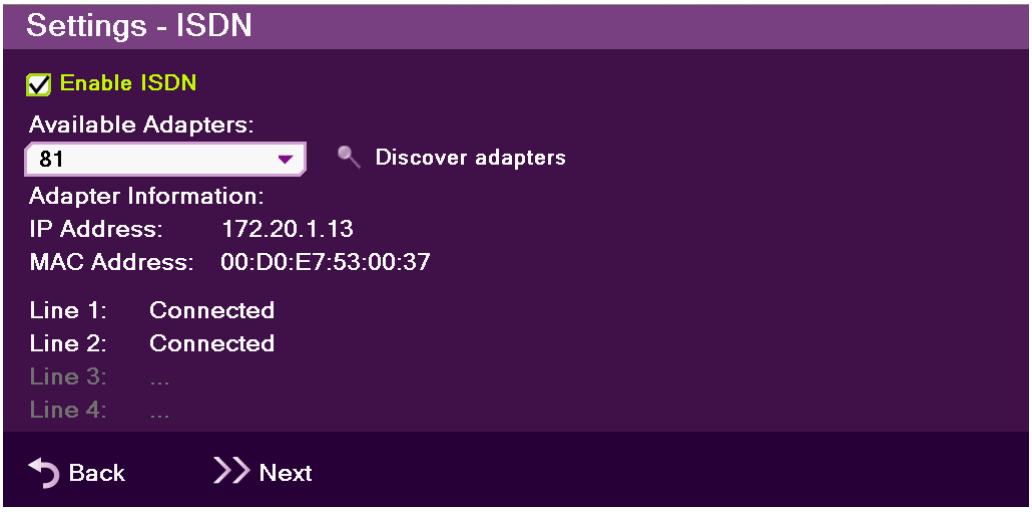
The ISDN wizard enables connection to ISDN based networks, using up to 4 ISDN BRI lines, reaching connection bandwidth of up to 512 kbps.

To configure ISDN settings:

1. Select **Settings>Network>ISDN**. The ISDN Settings configuration wizard appears.

   NOTE: The ISDN configuration wizard includes two or three steps, depending on the switch type used, which is country dependant. The configuration wizard guides you through the steps depending on your selection of device and switch types.

2. The ISDN Connection wizard screen includes the following properties:
   - **Enable ISDN** – Select this option to enable or disable ISDN functionality. Once selected, the ISDN adapter detection may take up to a minute.



   - **Available Adapters** – Displays the list of ISDN adapters available for this system. Click on Discover to populate the Available Adapters list, and select the desired adapter from the list. After you select an adapter, the Adapter Information, IP address and MAC address of the adapter are displayed.
   - **Discover adapters** – Select this button to scan for available ISDN adapters.
   - **Adapter Information** –
     - **IP Address** – IP address of the ISDN adapter.
     - **MAC Address** – MAC Address of the ISDN adapter.
   - **Line Indicators** – Displays the line status after connecting:
     - **Line 1:** ISDN line status for line number 1
     - **Line 2:** ISDN line status for line number 2
     - **Line 3:** ISDN line status for line number 3
     - **Line 4:** ISDN line status for line number 4

3. Select **Next** to continue to the ISDN Lines Configuration step (see next section: ISDN Lines Configuration).

ISDN Lines Configuration

The ISDN Lines Configuration window enables you to set the phone numbers of up to 4 lines.

To define the ISDN phone numbers:

1. Enter the appropriate number for each field, without the area or country code.

   NOTE: Depending on the switch type you selected, an additional step may be required. If you are not sure what numbers to enter, consult your system administrator.

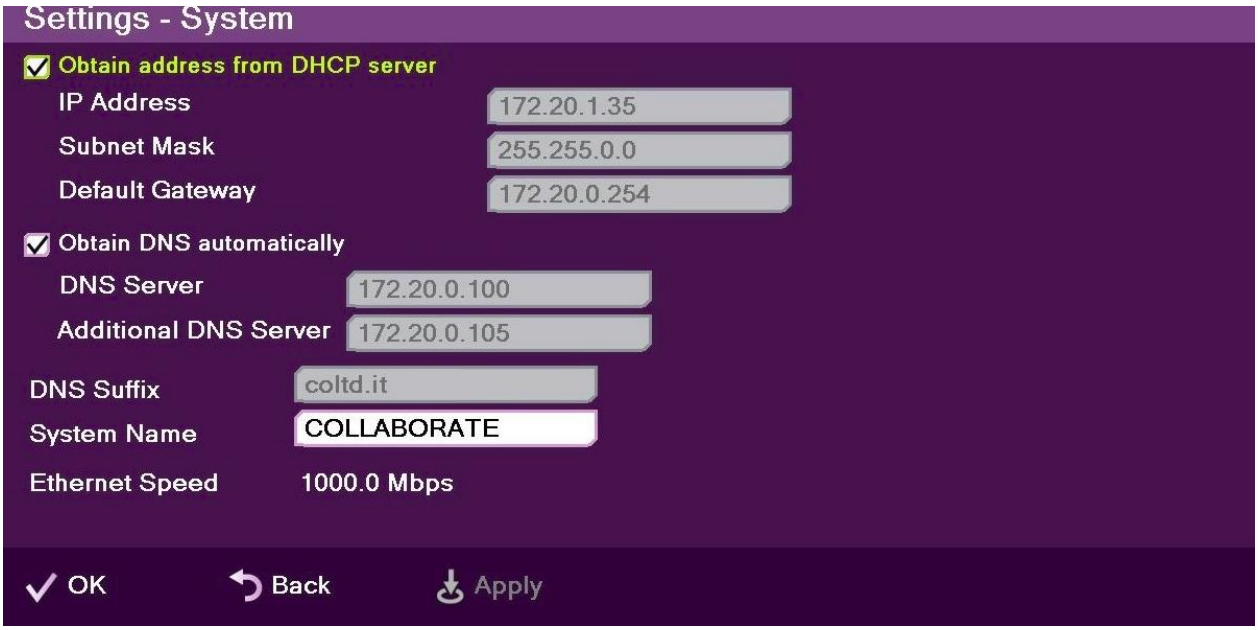
2. Select **Finish** to save the ISDN lines configurations and complete the configuration wizard.

SYSTEM SETTINGS

In the System Settings window you can configure TCP/IP networking parameters for COLLABORATE Room.

To edit system settings:

1. Select **Settings>Network>System**. The System Settings window appears.



2. In the System Settings window, set the following options and parameters
   - **Obtain Address from DHCP Server** – Select the checkbox to obtain an IP address from a DHCP server.
   - **IP Address** – Set the IP address for this system. If using a DHCP server, the address obtained from the DHCP server is displayed.
   - **Subnet Mask** – Set the subnet mask number for your network. If using a DHCP server, the address obtained from the DHCP server is displayed.
   - **Default Gateway** – Set the IP address of the default gateway router. If using a DHCP server, the address obtained from the DHCP server is displayed.
   - **Obtain DNS Automatically** – Use the DHCP server to decide your DNS server address. If you do not select Obtain address from DHCP server, fill in the following fields:
   - **DNS Server** – Set the IP address of the DNS server. If using a DHCP server, the address obtained from the DHCP server is displayed.
   - **Additional DNS Server** – Alternative DNS server, to be used in case the first DNS server defined can't supply the needed services.
   - **DNS Suffix** – Set the DNS domain suffix to be used by this system.

- **System Name** – Set the system DNS name used to identify the system when using DNS dialing.
- **Ethernet Speed** – Displays the network interface speed.

NOTE: Modify these settings only if they are required in your network.

3. Select **Apply**.

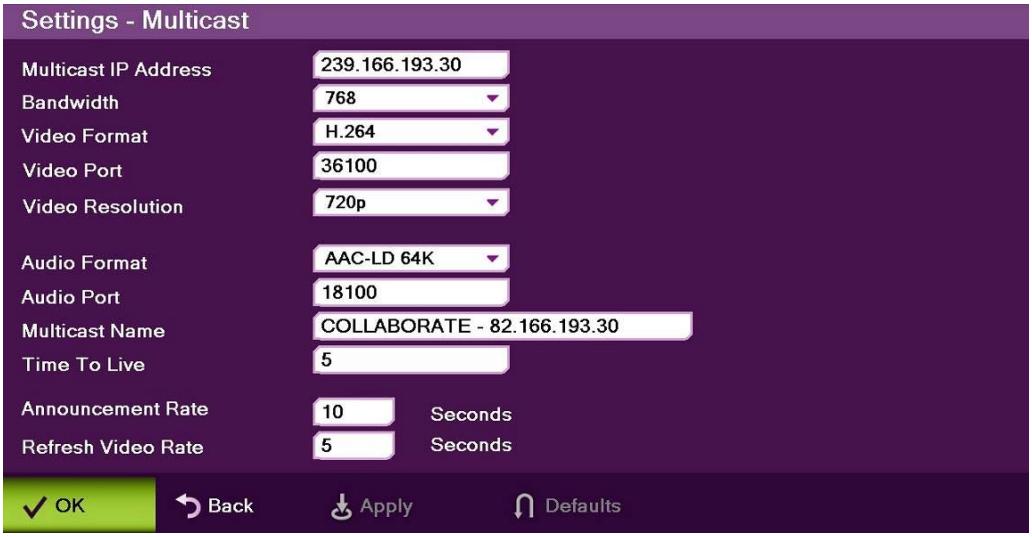
MULTICAST SETTINGS

Session multicasting allows you to broadcast your session using the multicasting networking transport technology, which allows users to send a video stream that can be received by multiple recipients, all listening on a single multicast address. Multicasting a session from your COLLABORATE Room allows numerous passive viewers to view the session. This is typically used at lectures, or any session that passive viewers can benefit from. Multicast sessions can be viewed by all ClearOne endpoints, the free ClearOne Broadcast Viewer, and the Apple QuickTime viewer.

The Multicast Settings window allows you to define how multicast sessions are initiated by COLLABORATE Room.

To access the multicast settings

1. Select **Settings>Network>Multicast**. The Multicast Settings window appears.



2. In the Multicast Settings window, set the following options and parameters
   - **Multicast IP Address** – IP address and gateway. The IP is dynamic according to unit's IP. The first subgroup of the IP format (AAA.BBB.CCC.DDD) is set to 239 according to the standard. You can change it to any value from 224 to239, and you can also change the rest of the sub groups (not recommended for multicast communications).

- **Bandwidth** – Maximum bandwidth (in Kbps) allowed for outgoing multicast streams.
- **Video Format** – The digital encoding format using during the multicast transmission; by default is set to H.264.
- **Video Port** – Number of the port through which the video multicast passes.
- **Maximum Video Resolution** – Select the required video resolution from the drop-down list.
- **Audio Format** – The Audio codec responsible during the transmission; by default is set to AAC-LD.
- **Audio Port** – Number of the port through which the audio multicast passes.
- **Multicast Name** – The identifying name of the multicast.
- **Time to Live** – The number of router hops allowed.
- **Announcement Rate** – SDP announcement rate in seconds.
- **Refresh Video Rate** – The video image refresh rate in multicast streams; an interval of 5 seconds is set by default.

3. Select **Apply**.

RECORDING AND STREAMING SETTINGS

You can define the local directory in which recordings should be saved, and also define the video streaming port parameters.

To configure the recording and streaming settings:

1. Select **Settings>Media**. The Recording and Streaming Settings window appears.

2. In the Recording and Streaming Settings window the following properties can be configured:
   - **Change Recording Path** – Select to set the path of the recording directory. This option is useful when changing the recording location to a USB flash drive or any external storage location.
   - **Streaming Port [1..65535]** – Enter the streaming port number. The default port is 12100.

- **Number of Streaming Ports [1..20]** – Enter the number of streaming ports. The default number of streaming ports is 10.
- **Recording Quality** – Select the quality of the video recordings made on COLLABORATE Room:

  For SD:

  - **Low** – Record at image resolution of 352x288 pixels (CIF).
  - **High** – Record at image resolution of 672×384 pixels (4CIF).

  For HD/FHD/PHD:

  - Low – Record at image resolution of 672×384 pixels (4CIF).
  - **High** – Record at image resolution of 1280×720 pixels (720p).

3. Select **Apply**.

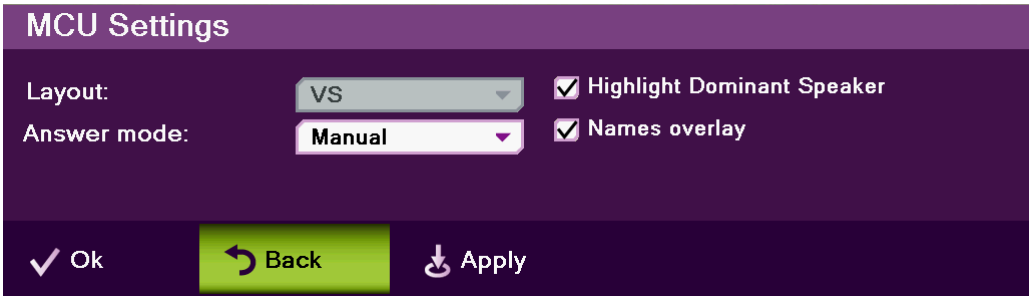
MCU SETTINGS

The embedded MCU (optional feature) enables connecting up to 9 endpoints simultaneously from various locations. This MCU capability includes the host system and an additional 8 endpoints, one of which can be connected through ISDN.

NOTE: Before using this functionality, please verify the licensing capabilities of your system. Go to the license page: Menu>Settings>General>License, and verify that the option "MCU" is selected (√).

To configure the MCU settings:

1. Select **Settings>MCU**. The MCU Settings window appears.



2. In the MCU window, set the following options and parameters:
   - **Layout** – Set the default layout for a multipoint call:
     - **Auto** – The system will change the layout automatically according to the following principle: for up to 4 participants, the 2×2 layout is used; for 5 or 6 participants, the 5+1 layout is used; for 7 and up to 9 participants, the 3×3 layout is used.
     - **VS** (voice switched) – The video stream of the dominant speaker is shown. The current dominant speaker sees the previous dominant speaker.

    - **2×2** – The screen is divided into 4 quadrants of the same size. Each quadrant contains an image. If there are more than 4 endpoints in the call using this layout, the dominant speaker appears, replacing an image of a non-dominant speaker.
    - **3×3** – The screen is divided into 9 rectangle portions of the same size. Each quadrant contains an image.
    - **5+1** – This layout divides the screen into six rectangle portions. One is larger than the other parts and contains the image of the dominant speaker at any given time.
  - **Answer Mode** – Set the default answer mode for the second and subsequent calls:
    - **Accept** – Automatically accept incoming calls
    - **Reject All** – Automatically reject all incoming calls
    - **Manual** – Display a prompt each time a call comes in
  - **Highlight Dominant Speaker** – Display a green frame around the quadrant of the dominant speaker, except for in the 5+1 layout.
  - **Names Overlay** – Display the remote station name overlaid on each participant image.
3. Select **Apply**.

   Incoming calls will be answered using the settings you configured.

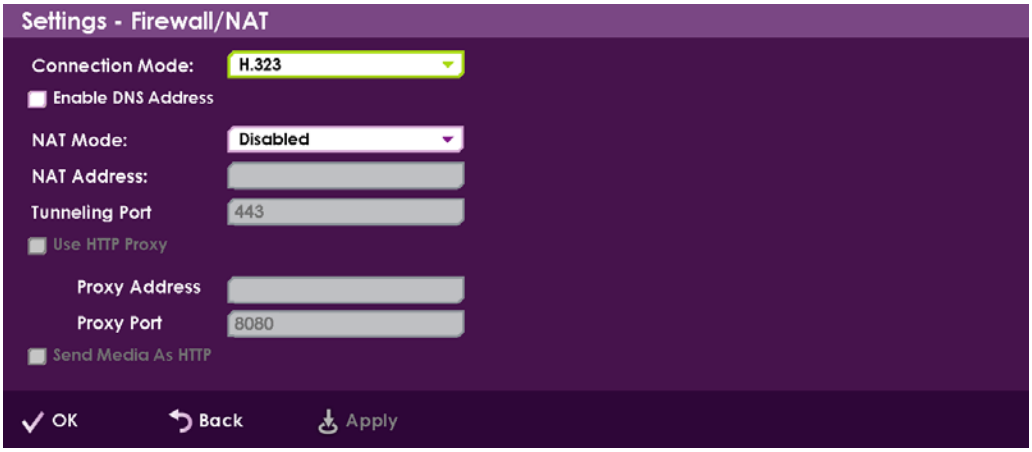
FIREWALL AND NAT SETTINGS

The Firewall/NAT Network Settings contain your system's identification configuration on the local network.

NAT helps protect a LAN from exposure to unwanted traffic by providing one single external address to remote users. NAT uses a system of local and external addresses to hide a LAN's users from other networks. A NAT server translates local parties' addresses to an external address, which is then used to identify the local party to remote parties. Therefore, remote parties use this external address to call the local party, without knowing its actual local address.

To access Firewall/NAT Settings:

1. Select **Settings>Network>IP>Firewall/NAT**. The Firewall/NAT window appears.



2. In the Firewall/NAT window, set the following options and parameters:
   - **Connection Mode**
     - **H.323** - This selection should be selected manually for LAN network connections only when the connection type is known.
     - **H.460** - This selection should be selected manually for network connections over Firewall/NAT only when the connection type is known.
     - **Tunneling** - This selection should be selected manually for ClearOne Proprietary Tunneling. The default tunneling port is configured by the System Administrator (see NetPoint/ COLLABORATE Central Administration Configuration Manager).
   - **Enable DNS Address** – Allows the use of DNS for outgoing calls to other parties by a defined computer name.

- **NAT Mode**
  - **Disabled –** Callers to the organization LAN are not identified.
  - **Manual** – Enter your external IP address. The NAT device maps this to your internal extension number.
  - **Automatic** – The NAT device recognizes your IP address and maps it to your internal extension number when you dial out through your organization LAN.
- **NAT Address** – If your organization uses NAT when communicating with parties in another LAN or WAN, type the external address for your videoconferencing device.
- **Tunneling Port** – The default tunneling port is 443. Tunneling is available only when working with COLLABORATE Central.
- **Use HTTP Proxy** – If your organization uses Proxy server, configure in the Proxy Address and Proxy Port.
- **Send Media As HTTP** – Disguising tunneling traffic as HTTP.

Chapter 7: Web Access and Management

IN THIS CHAPTER

This chapter explains how to access COLLABORATE Room via a browser and use the Web-based GUI for viewing sessions/files, and configuring the unit from a remote location or via the LAN.

The Web interface includes all the options that are available via the regular on-screen GUI, as well as some additional configuration options that are not available via the regular GUI.

Since the user options shared by both GUIs are generally the same, this chapter focuses mainly on the exclusive web options, and includes the following sections:

- Accessing COLLABORATE Room via Browser
- Viewing a Stream Session
- Viewing a Multicast Videoconference
- Importing/Exporting the License
- Viewing the Recording Archive
- Sending Running Text in a Call
- Viewing Call Status
- Performing System Upgrade
- Performing System Backup
- Performing Systerm Restore to Factory Settings
- Performing System Restore from Backup File
- Performing System Restore from FTP

ACCESSING COLLABORATE ROOM VIA BROWSER

You can access COLLABORATE Room via a standard Web browser from any remote location or from your LAN.

NOTE: The current Web version of COLLABORATE Room supports Microsoft Internet Explorer 6 (or newer) only.

To access COLLABORATE Room via a browser:

1. Open your Internet Explorer browser.
2. In the browser's address bar, type the direct IP address of the COLLABORATE Room unit. The COLLABORATE Room Web login page appears. For example: http://172.100.100.25

NOTE: If you do not know the IP address of the COLLABORATE Room unit, request assistance from a user in proximity to the unit, who can check the unit's IP address as explained in Displaying System Information.

3. If a password was set for Web access (see Administration Settings): in the **Password** field, enter your password for accessing the management options, and then click **Login**.

   If the password is authenticated, the management options page appears.

VIEWING A STREAM SESSION

You can view in your browser any stream that has started on COLLABORATE Room. The stream may be of whatever is currently being captured by the video camera and microphone that are connected to COLLABORATE Room.

The stream is viewed in the browser using Windows Media Player embedding.

NOTE: Viewing a stream does not require you to enter your password and you do not have to log in.

To view a stream session:

1. Open your Internet Explorer browser.
2. In the browser's address bar, type the direct IP address of the COLLABORATE Room unit. The COLLABORATE Room Web login page appears.
3. Click **View Stream**; a new browser window opens and displays the stream on a page with Windows Media Player embedded to it.

VIEWING A MULTICAST VIDEOCONFERENCE

You can view in your browser an ongoing multicast videoconference that has started via the COLLABORATE Room unit.

The multicast videoconference is viewed in the browser using Windows Media Player or Apple QuickTime plug-in embedding.

> **NOTE: Viewing a multicast videoconference does not require you to enter your password and you do not have to log in.**

To view a stream session:

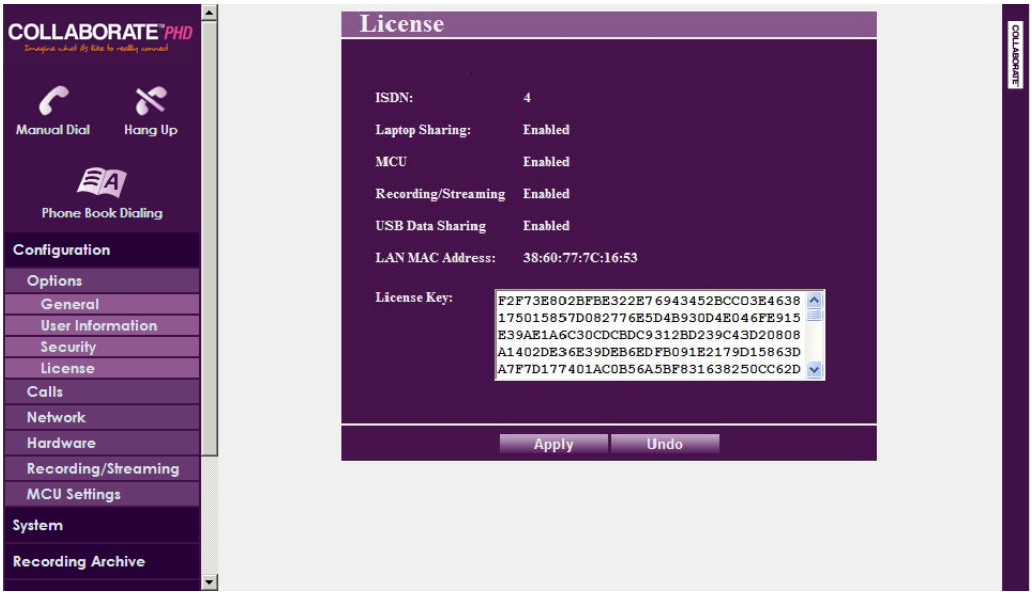
1. Open your Internet Explorer browser.
2. In the browser's address bar, type the direct IP address of the COLLABORATE Room unit. The COLLABORATE Room Web login page appears.
3. Click **View Multicast**; a new browser window opens and displays the videoconference on a page with Windows Media Player or QuickTime embedded to it.

IMPORTING/EXPORTING THE LICENSE

Some features and functionalities in COLLABORATE Room require licensing, and are activated with a license key that you must enter and save to your COLLABORATE Room unit.

To enter and save a license to your COLLABORATE Room unit:

1. After logging in, click **Configuration>Options>License**. The License page appears.



2. Copy and paste the license key (a long text-based string) that you received from ClearOne into the **License Key** text box, and then click **Apply**.

   Once the license key is applied, you can view which features/functionalities are available:

   - **ISDN** – Number of ISDN lines available for use.
   - **Laptop Sharing** – Indicates whether the laptop sharing functionality is enabled or disabled.
   - **MCU** – Maximum number of endpoints that can participate in videoconferences using the embedded MCU.
   - **Recording/Streaming** – Indicates whether the recording and streaming functionalities are enabled or disabled.

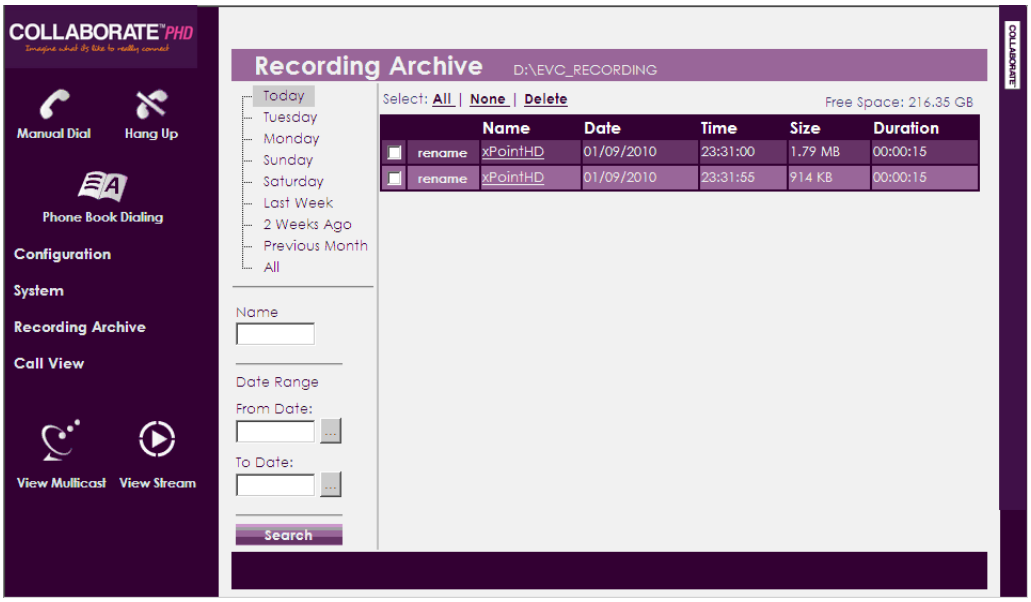
   The unit's LAN MAC address is also displayed.

VIEWING THE RECORDING ARCHIVE

You can view the list of recordings that are stored in the COLLABORATE Room recording directory, and you can also delete recordings that are no longer needed.

To view the list of recordings:

1. After logging in, click **Recording Archive**. The Recording Archive page appears.



2. Choose which recordings you would like to view by using the following filtering options:
   - **Today** – Click to display only the recordings that were saved in the current day.
   - **Specific day of this week** – Click any other day of the current week to display the recordings that were saved on that specific weekday.
   - **Last week** – Click to display only the recordings that were saved last week.

- **2 Weeks Ago** – Click to display only the recordings that were saved two weeks ago.
- **Previous Month** – Click to display only the recordings that were saved in the previous month.
- **All** – Click to display the entire archive of recordings that are saved in the COLLABORATE Room recording directory. The directory path is shown in the title line above the list.
- **Name** – If you want to search for a specific recording name, enter the name in this text box and then click the **Search** button below.
- **From Date/To Date** – Use these boxes to define a date range for the recordings that you want to display on the list. Only the recordings that were saved in the defined range will be displayed once you click the **Search** button. You can browse for specific From/To dates using the two Browse buttons available next to the text boxes.

The Recording Archive list shows the following details for each saved recording:

- **Name** – Name of the recording. You can click the adjacent **Rename** button if you want to change the file name.
- **Date** – Date on which the recording was made and saved.
- **Time** – Time at which the recording was made and saved.
- **Size** – Size of the recording file in kilobytes or megabytes.
- **Duration** – The recording's length.

The currently available disk space size, labeled **Free Space**, is displayed above the list.

To delete a recording:

- Select the checkbox on the row of the recording's entry, and then click **Delete**. You can select more than one recording.

NOTES:

- **To select the checkboxes of all recordings that are currently displayed, click Select All.**
- **To clear the checkboxes of all recordings that are currently displayed, click None.**

SENDING RUNNING TEXT IN A CALL

During a videoconference call, you can type and send a text message to the person(s) with whom you are communicating. The message is displayed as running text on top of the video image on the far-end screen.

To type and send a running text message:

1. Start the videoconference call. The **Running Text** button appears in the Call View box (available only in the Web interface).

2. Click the Running Text button. The Running Text box appears.
3. In the text box, type the message you want to send and display on the far-end screen, and then click **Start**.

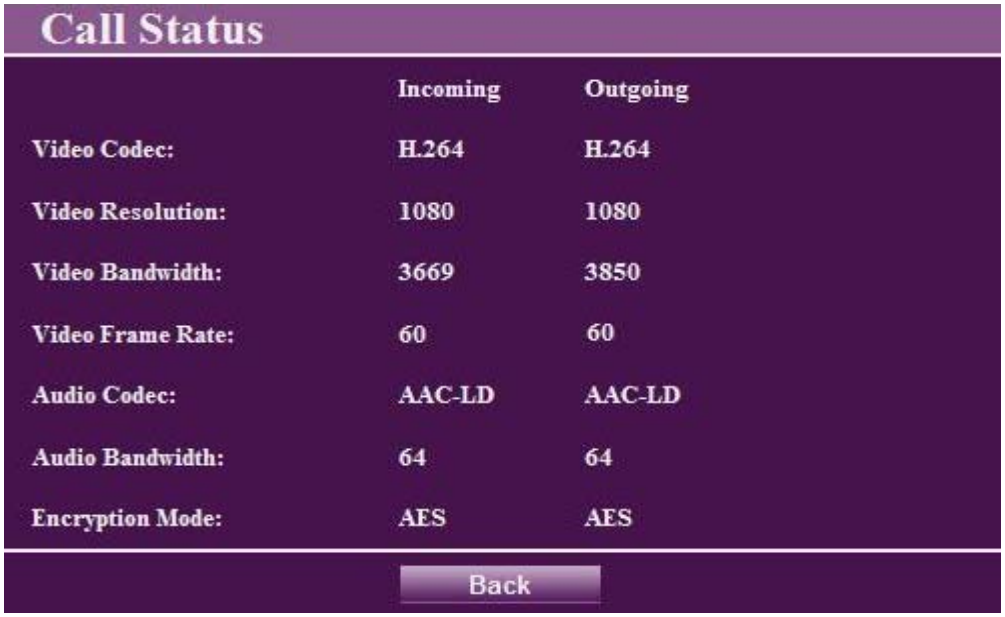
NOTE: To stop the display of the running text message on the far end, click Stop.

VIEWING CALL STATUS

During a videoconference call, you can view and check the technical details of the call.

To view the call status details:

- During the videoconference call, click the **Info** link in the Call View box (see Call View box).



The following information is displayed in the Call Status box for both **incoming** and **outgoing** communication:

- **Video Codec** – Video codec used to display video in this call
- **Video Resolution** – Video resolution used in this call
- **Video Bandwidth** – Bandwidth used by the video in this call
- **Video Frame Rate** – Video frame rate used in this call
- **Audio Codec** – Audio codec used to sound audio in this call
- **Audio Bandwidth** – Bandwidth used by the audio in this call
- **Encryption Mode** – Type of encryption used in this call (if encryption is used).

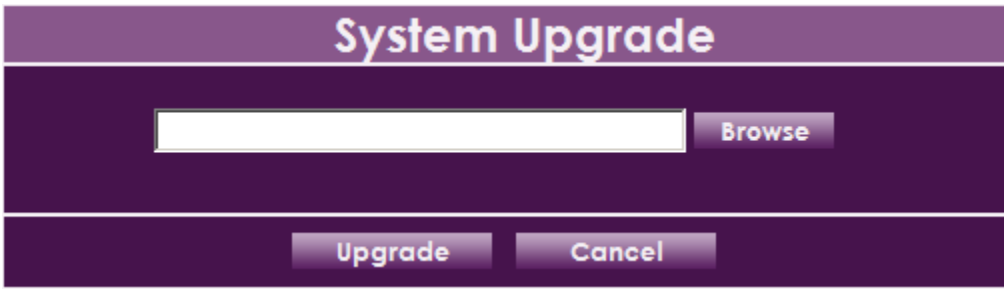
NOTE: To return to the Call View box, click Back.

PERFORMING SYSTEM UPGRADE

You can upgrade the COLLABORATE Room software, using an attached keyboard and mouse, to a newer version when such becomes available.

To upgrade the COLLABORATE Room software:

1. After logging in, click **System>System Upgrade**. The System Upgrade box appears.

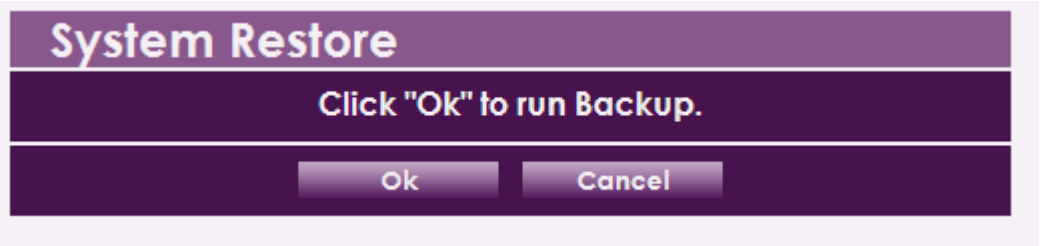


2. Click **Browse** and then select the ClearOne-provided file that contains the newer software version.
3. Click **Upgrade**. The system upgrade is performed and then the system reboots.

PERFORMING SYSTEM BACKUP

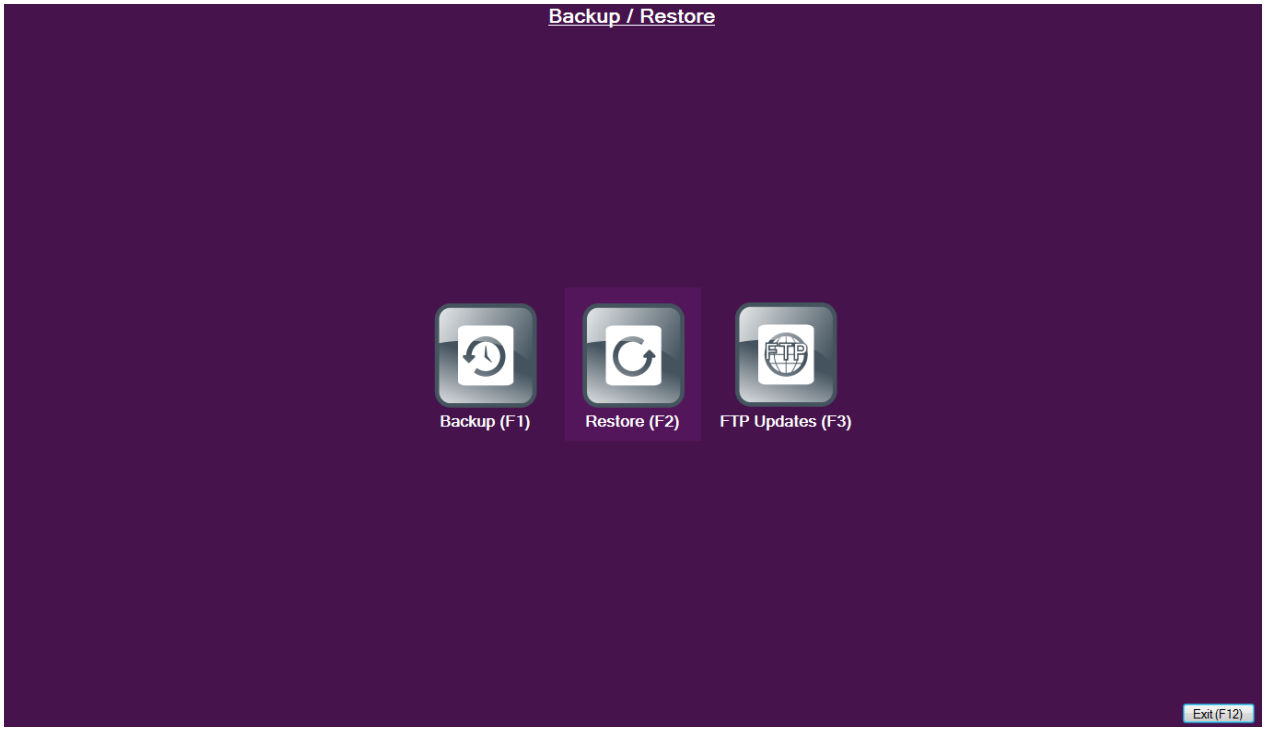
The Backup option, using an attached keyboard and mouse, takes a snapshot of the current COLLABORATE Room configuration. It is recommended to take backup snapshots every time a configuration change is made.

4. After logging in, click **System>System Restore**. The **System Restore** box appears.

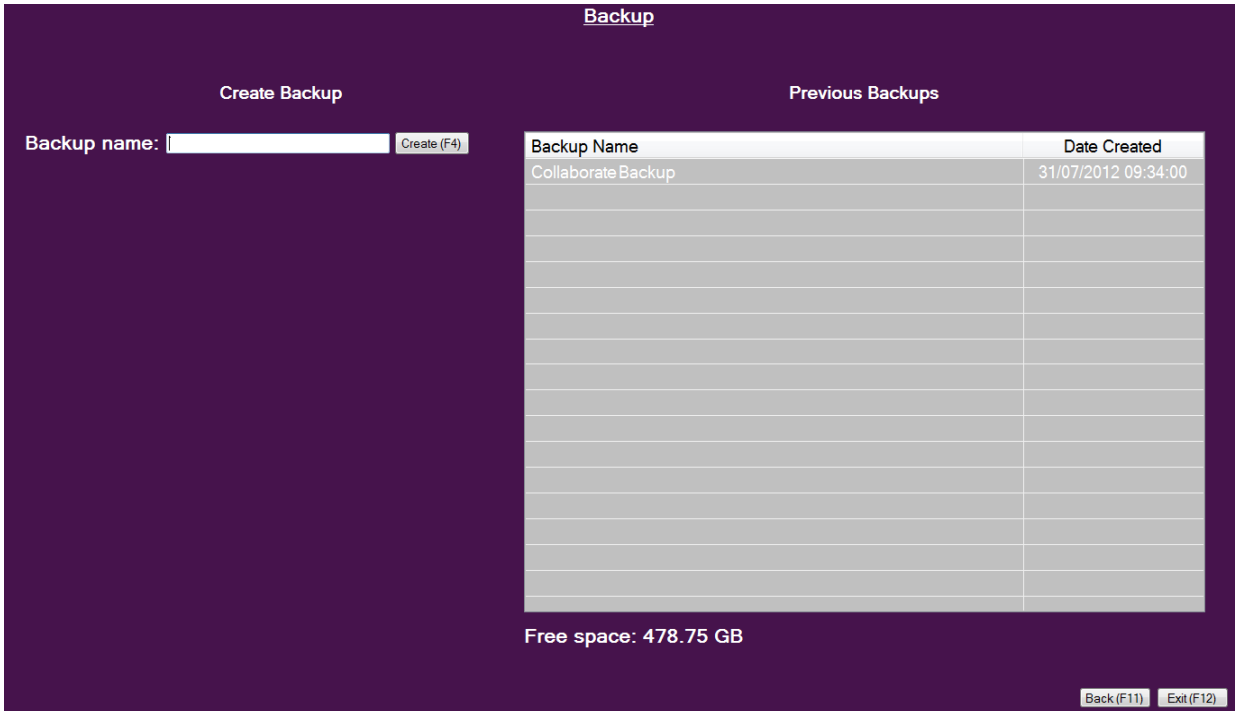


NOTE: For the current release the Backup and Restore functions are accessed by the same screen.

5. Click **OK**, or wait and the system will automatically reboot.
6. The system will reboot and a **Backup**/**Restore** screen will appear



7. Select the **Backup** option (F1). The **Backup** screen will appear.



8. Enter the **Backup name** and click on the **Create** (F4) button to create the backup file of the configuration.

9. Once it is done, press the **Exit** (F12) button and reboot the system. Shutdown the system by pressing few seconds on the **power** button; then press the **power** button again in order to turn on the system.

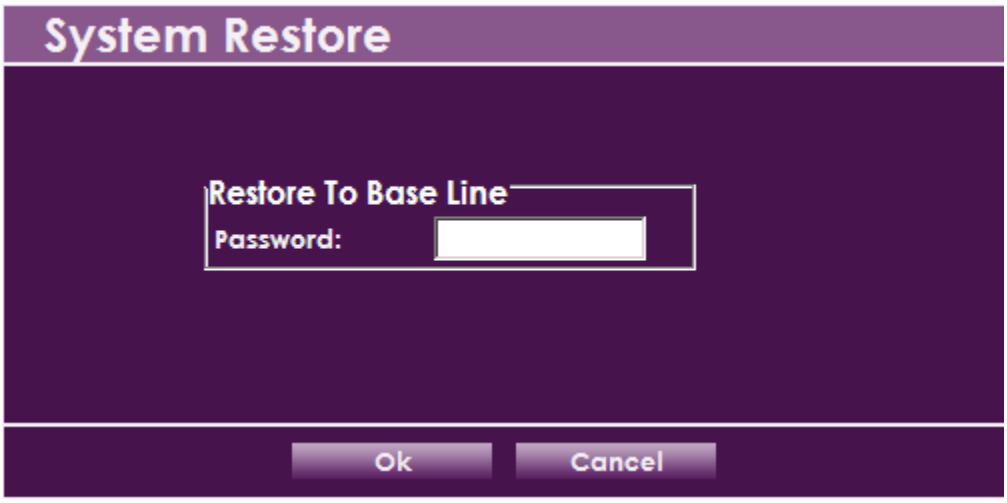
PERFORMING SYSTEM RESTORE TO FACTORY SETTINGS

Whenever necessary, you can discard all manual configuration and restore the factory-default settings.

NOTE: it is recommend to take a backup snapshot each time you configure your system.

Use an attached keyboard and mouse to reset the COLLABORATE Room unit to its factory defaults:

1. After logging in, click **System>System Restore**. The System Restore box appears.



2. In the **Password** box, enter the password (default: 1234) for restoring the system to its factory defaults.
3. Click **OK**.

NOTE: All information on the system including user information, address book entries, IP and ISDN settings and all other user defined information will be deleted.

NOTE: After restoring the system to its factory defaults, it maybe be necessary to perform a system upgrade.

PERFORMING SYSTEM RESTORE FROM BACKUP FILE

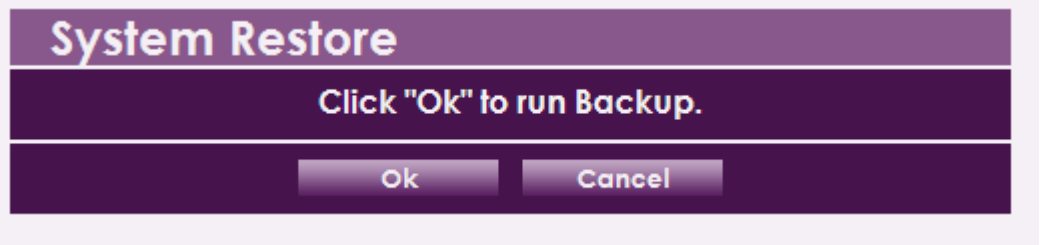
Whenever necessary, you can discard all manually entered configuration settings and restore the settings to a saved backup of an earlier configuration.

NOTE: before restoring the system, you must save the system License Key. This is accessed by using the menu:

Configuration>Option>License

Reset the COLLABORATE Room unit to a backup snapshot file using an IE browser:

1. Open your Internet Explorer browser.
2. In the browser's address bar, type the direct IP Address of the COLLABORATE Room unit. The COLLABORATE Room web login page appears. For example: http://172.100.100.25
3. After logging in, click **System>System Restore**. The **System Restore** box appears.



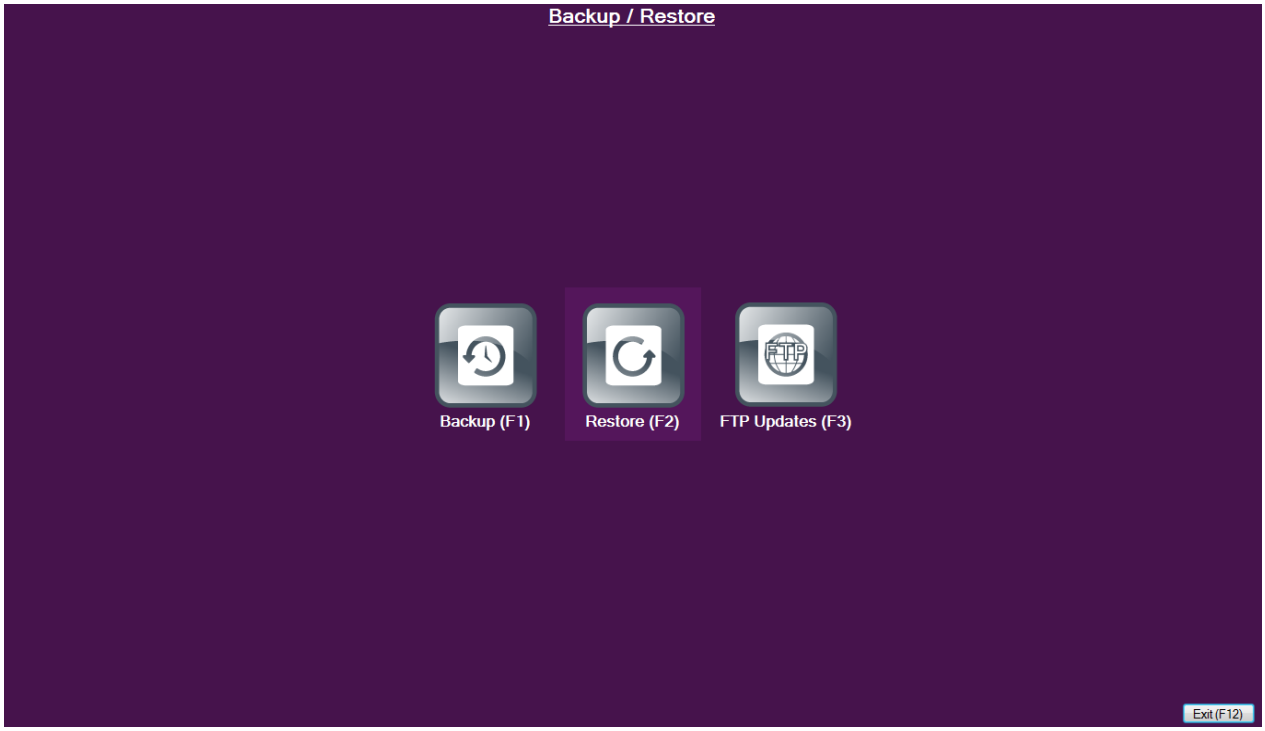
NOTE: For the current release the Backup and Restore functions are accessed by the same screen.

4. Click **OK**.

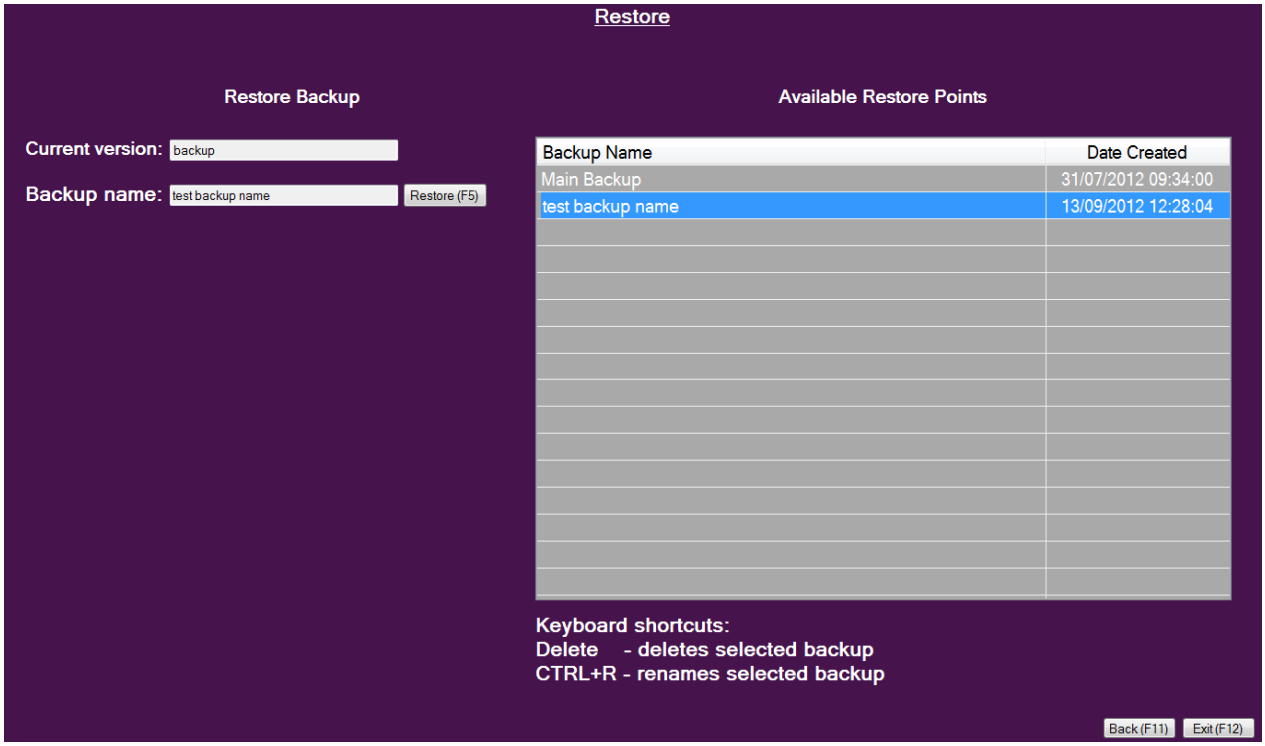
NOTE: All information on the system including user information, address book entries, IP settings, ISDN settings and all other user defined information will be deleted.

NOTE: After restoring the system to its factory defaults, it may be necessary to perform a system upgrade.

5. The system will reboot and **Backup**/**Restore** menu will appear.



6. Select the **Restore** (F2) button. The **Restore** screen will appear.



7. Select the backup configuration file you want to restore, and press on **Restore** (F5) button.

8. Once the restore process is completed, press **OK** and shutdown the system by pressing for a few seconds on the **power** button; then press the **power** button again in order to turn on the system.
9. Copy the stored License Key to the system (Configuration>Option>License)

PERFORMING SYSTEM RESTORE FROM FTP

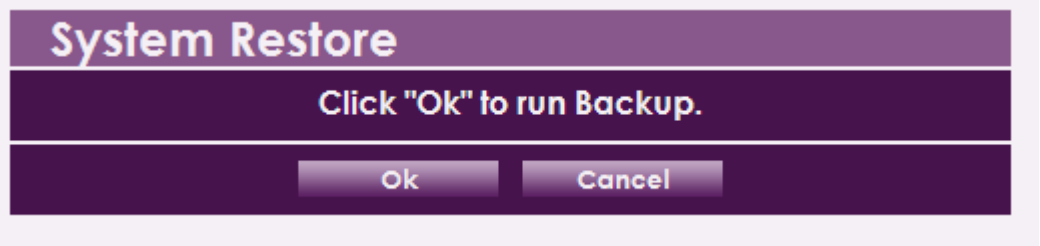
Whenever necessary, you can discard all manually entered configuration settings and restore using settings delivered via FTP.

NOTE: before restoring the system to its factory defaults, you must save system License Key. This is accessed by using the menu:

Configuration>Option>License

To reset the COLLABORATE Room unit, using an attached keyboard and mouse, to its factory defaults:

1. After logging in, click **System>System Restore**. The **System Restore** box appears.

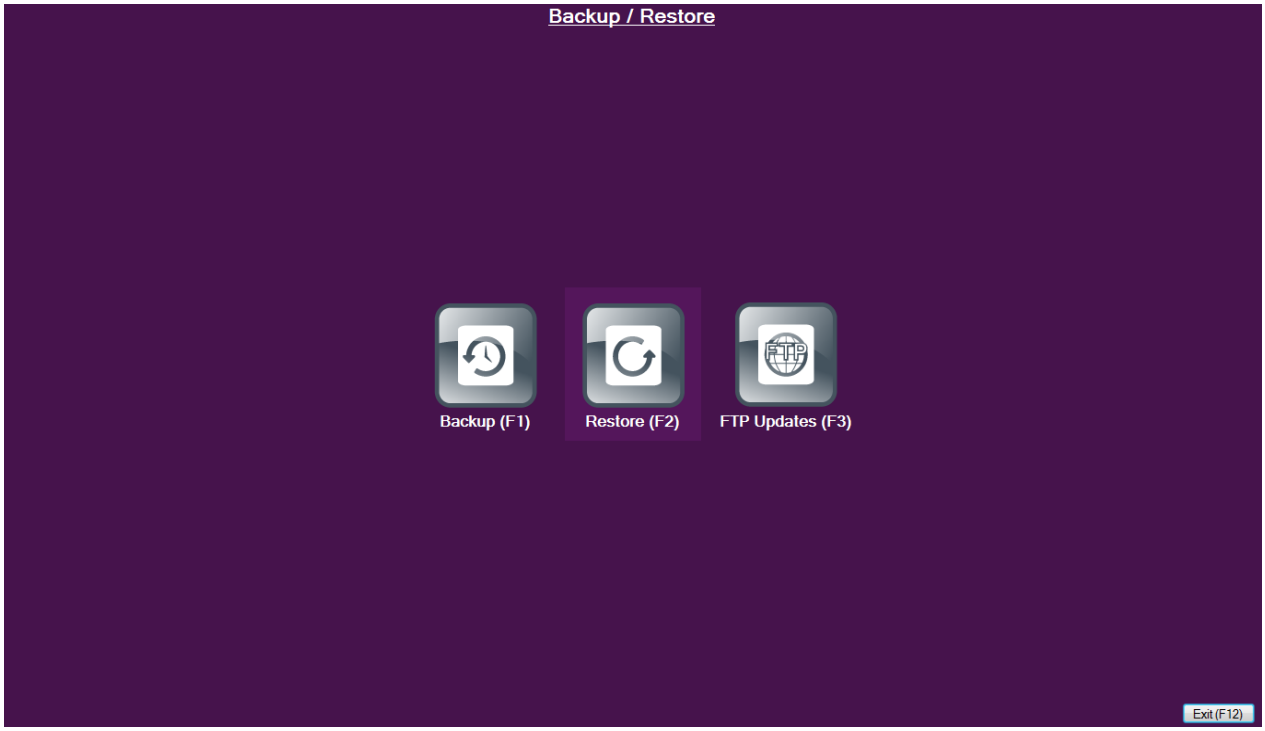


2. Click **OK**.

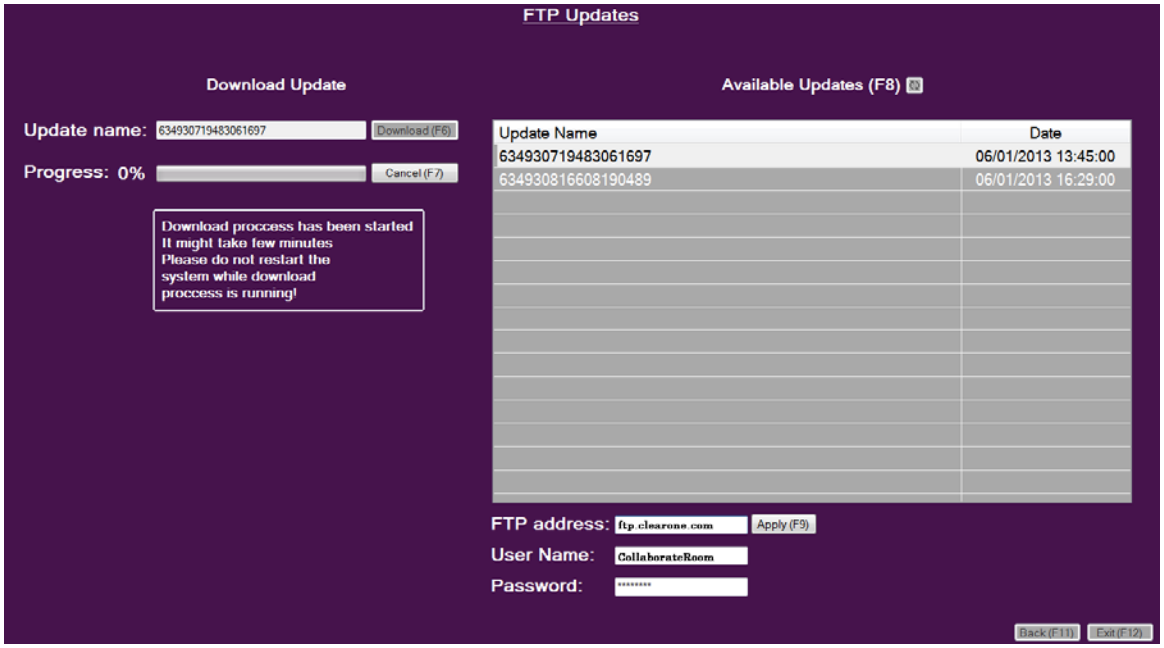
NOTE: All information on the system including user information, address book entries, IP and ISDN settings and all other user defined information will be deleted.

NOTE: After restoring the system to its factory defaults, it maybe be necessary to perform a system upgrade.

3. The system will reboot and **Backup**/**Restore** menu will appear.



4. Select the **FTP Updates** (F3) button. The **FTP Updates** screen will appear.



5. Enter the FTP server details including **FTP Address**, **User Name** and **Password**, and click the **Apply** (F9) button.
6. Press the **Available Updates** (F8) button to refresh the backup file list.
7. Select the file from the listing, and then click on the **Download** (F6) button.
8. Once the download is completed, press on the **Back** (F11) button.
9. Select the **Restore** (F2) button and follow the restore steps listed above.

Chapter 8: Telnet Commands

The telnet commands allow you to communicate with a remote computer that is using the Telnet protocol.

You can run **telnet** without parameters in order to enter the telnet context, indicated by the Telnet prompt (**telnet>**). From the Telnet prompt, use the following commands to manage a computer running Telnet Client.

ENABLING THE TELNET API

To enable the Telnet API:

1. Click **Settings > General > Admin**.
2. Check the **Enable Telnet Interface** checkbox.

DESCRIPTIONS OF THE TELNET API

Key	Description	Arguments	Example
accept	Accept incoming call	—	`accept`
change_camera	Set current camera by index (call *cameralist* for list of available video devices)	Index:1-9	`change_camera 1`
callinfo	Request call info values	SessionID: Valid session ID number	`callinfo 1`
camerahome	Return PTZ camera to default position	—	`camerahome`
cameralist	Return list of available video devices	—	`cameralist`
camerapos	Save or restore camera position from preset	Action: save, restore Position: 1-9	`camerapos save 2` `camerapos restore 1`
camerastart	Start camera movement pan, tilt, zoom in different direction	Direction: • u – up • d – down • l – left • r – right • ul – up+left • ur – up+right • dl – down+left • dr – down+right • zi – zoom in • zo – zoom out	`cameramove u` `cameramove up`

Key	Description	Arguments	Example
camerastop	Stop camera movement	Direction: • spt – stop pan tilt • sz – stop zoom	`camerastop sz`
dial	Dial specific address via LAN network or ISDN communicator	• Address: • Calltype: lan,isdn,audio • Bandwidth (optional): 64, 128, 256, 384, 512, 1024 (Bandwidth list is configurable in Commands.xml file on both sides, server and client)	`dial 125.0.1.2 lan 128` `dial 7584568 isdn`
dtmf	Send DTMF tone to remote endpoint identified by Participant ID (Note: Use sessions to retrieve Participant ID)	ParticipantID: any valid participant number DTMF: DTMF tone sequence	`dtmf 23 035667344` `dtmf 111 123433#5*`
dtmf2all	Send DTMF tone to all active calls	DTMF: DTMF tone sequence	`dtmf2all 035667344` `dtmf2all 123433#5*`

get	Get parameter value	Parameter:
		• mic
		• volume
		• speaker
		• license
		• autoanswer
			`get mic`
			`get volume`
			`get autoanswer`

set	Set parameter value	Parameter:
		• mic
		• volume
		• speaker
		• autoanswer
			`set mic on`
			`set volume 5`
			`set autoanswer on`

Chapter 9: Specifications

The following are the COLLABORATE Room specifications.

Video Specifications	
Transmission Speed	• SIP / H.323: 96 Kbps - 6Mbps (SD up to 4Mbps) • ISDN 64 Kbps -512 Kbps (4xBRI)* *not supported in current version
Video Standards	H.261, H.263, H.263+/++, H.264

Live Video Resolution	• QCIF (176 x 144 pixels)
	• QVGA (320 x 240 pixels)
	• CIF (352 x 288 pixels)
	• SIF (352 x 240 pixels)
	• VGA (640 x 480 pixels)
	• 4CIF (704 × 576)
	• 4SIF (704 x 480)
	• 720p (1280 x 720 pixels) Rx/Tx HD, Rx SD
	• 1080p (1920 x 1080 pixels) - Rx SD/HD, Tx/Rx PHD and Tx/Rx FHD
	  • 720/60 - 1080/30 (Rx SD/HD, Tx/Rx PHD and Tx/Rx FHD)
	  • 1080/60 (Rx SD/HD/FHD, Tx/Rx PHD)

Video Frame Rate	• Up to 10 fps: 96 Kbps • Up to 20 fps: 128 to192 Kbps • Up to 30 fps: 256 Kbps and higher
Video Inputs	• SD: Composite and S-Video • HD: HDMI or HD-SDI • FHD: HDMI • PHD: DVI
Video Outputs	HDMI, Digital Video Interface (DVI)
HD Simulcast	• Integrated Broadcast Viewer

Audio Specifications	
Audio Features	• Full duplex echo cancellation • Automatic noise suppression (ANS) • Automatic gain control (AGC)
Audio Standards	• 20 KHz: AAC-LD • 7 KHz: G.722, G.722.1 • 3.4 KHz: G.711, G.723.1, G.728,G.729 • AMR (3G)
Data Specifications	• Data Sharing Methods • Laptop plug in • USB storage key • Documents: PPT, PPS • Video clips (AVI, MPEG, WMV, etc.) • Graphic files (BMP, GIF, TIF, etc.)
HD DualStream	• Sharing of file, or the VGA input • H.239 support • Tandberg DuoVideo support • Sending and receiving capability • 1 live video source + 1 data source • Resolutions supported: XGA, SVGA, VGA, CIF, QVGA, QCIF, 4CIF

Networking Specifications	
Standards Supported	• SIP Protocol: RFC 3261 • ITU-T: H.323 v4.2 Annex Q (FECC) • ISDN: H.320*, H.221, H.242, H.230 * This option will be supported in a future version of COLLABORATE Room.
H.323 QoS Features	• DiffServ • IP Precedence • Firewall port sync • NAT IP mask • Port pinholing • Adaptive Bandwidth Adjustment • Packet loss recovery (FEC) • Packet ordering • Packet duplication control • Jitter correction • Lip sync correction • Overhead prediction • Max packet size adjustment
Peripheral Specifications	
Monitors Configuration	• Single DVI or HDMI • Dual: DVI + HDMI
Pan-Tilt-Zoom Camera Unit	• PHD: 14x Zoom • FHD: 14x Zoom • HD: 10 or 14x Zoom • SD: 18x Zoom

Features Specifications	
Dialing Modes	• Manual • Speed dial • Personal address book • Online directory • Broadcast viewer
Security	• Encryption using H.235 (AES) • Search and filter packet ordering • Packet duplication • AES is NIST validation • Firewall traversal using NetPoint H.460 protocol and ClearOne Tunneling proprietary protocol • NAT – Network Address Translation • Supports restricted access to users via admin

Directory Services	• 1000+ local number directory
	• 10,000+ global number directory
	• H.350 support (COLLABORATE Central mode)
	• LDAP online directory support
	  • Open LDAP
	  • Microsoft ILS, SiteServer, Active Directory and Exchange
	• Search and filter queries

Environmental	• 0 - 40°C temperature
	• 15 - 80% humidity
	• Universal Power Supply:
	  • Input 100~240VAC@1.8A
	  • Frequency 50/60 Hz
	• PS Output / Appliance Input:
	  • 12VDC@6.67A Max

Language Support	English, French, German, Italian, Russian, Chinese, and Korean